The Builder.

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Derbyshire Marbles.

THE limestones of the Carboniferous series of Derbyshire have been noted for many years as producing most excellent marbles, but it is a long time since the varieties of stone found have been described, and very little appears to be known concerning those actually polished and sent to the market. The following remarks are the result of investigation on the spot.

We found that a large number of the quarries alluded to by writers on English marbles, together with the kinds of marbles raised in them, are no longer to be seen, and in their places new quarries and stones have sprung up, which, so far as we are aware, have not previously been noticed, It is now 150 years since machinery for cutting marble was erected in Derbyshire, and that was at the picturesque village of Ashford, about two miles north-west of Bakewell. The works are still in a flourishing condition, and contain some of the most curious and interesting devices for polishing stone that we have ever seen. One of these, in particular, attracted our attention; it was an antiquated two-armed rubber, the shafts of which were attached to an oscillating baulk of timber — cumbrous, slow, and creaking, but doing its work very well for all that. Alongside this relic of the past, as if to challenge competition with it, stood modern machinery, well up to date, the whole being driven by water-power.

The marble polished in these works is raised in quarries far and near. Close by, on the other side of the little stream, is a quarry yielding "black" marble, wherein the beds of stone run up to the thickness of a foot or so. This material well deserves its name, for it is as black as jet, though here and there minute white spots may be detected in it. It may be described as a thin-bedded, earthy, bituminous limestone, having a conchoidal fracture. Small lenticular patches of black chert occur on certain horizons, which, of course, have to be avoided in sawing. The majority of the beds are separated by a thin parting of black shale. Chemically, the stone contains about 18 per cent. of alumina, 4 of silica, and 1·5 of iron, the remainder being carbonate of lime.

Not far off, near the little village of Sheldon, is the working whence the famous "rosewood" marble comes. This stone is of a dark sienna colour with numerous thin lighter-tinted lineations running through it. These latter are undulating and even contorted in places, so that in producing a plane polished surface a remarkable pattern is revealed, not unlike that exhibited by polished rosewood. The maximum thickness of a bed is about 1 ft. 8 in.

In the neighbourhood of Sheldon, Sheldon Moor, and Monyash there are several quarries in what is known locally as "grey fossil" marble. In London and elsewhere it is variously styled "entrochal," and "encrinital," and we blush to read in the guide to a well-known London museum—a museum under Government control—issued for the information of the public, that this marble derives its names "from the presence of abundant fossil remains of *encrinites*,* or 'stone lilies.'" Then an "encrinite" is described — such a description as the older naturalists at the commencement of the century delighted in; and the architectural visitor, to whom that part of the guide referring to marbles would be specially attractive, is calmly asked to believe that the *upper part of the skeleton* (whatever that may mean in this sense) of one species of *encrinite* consisted of nearly 27,000 small *bones*. It is as well to remind the officials of the museum that science must not be caricatured in that fashion in an endeavour to popularise it, if indeed such is the aim—and the charitably disposed would probably regard the observations in that light. For ourselves, we know not what to think of the palæontological acquirements of the writers of that work when we read a little lower down the page that the "shell" marbles of Derbyshire contain the remains of *brachiopodous molluscs*, and that "The Spirifer and Producta, two genera of the above *class*, are the most abundant in these limestones." If it became necessary to mention the brachiopoda by name at all, why not have designated them correctly as *Spirifera* and *Productus?* And we have yet to learn that these are molluscs. The snatchings from the Greek, in the same paragraph, are strangely incongruous with such pseudo-scientific utterances, and serve to show that the intention was not altogether to popularise.

After this little digression concerning the shortcomings of those who should be our teachers in matters pertaining to the natural history of the marbles under review, it will not be unprofitable to say something respecting the various names by which these Derbyshire marbles are known to architects. We find that the terms "encrinital," "encrinoidal," "entrochal," "crinoidal," and "grey fossil" are commonly believed in the profession to be employed by scientists for reasons of their own, in alluding to these stones. Therefore, it is argued, we may call them by all or any of these names. But that is not the case, except in a very limited sense. The fact is that geologists, as a body, take no interest in the spread of knowledge concerning the applications of their science, and do not care one iota for Derbyshire marbles, as such, nor, indeed, for any other marbles, for the matter of that. A polished fossiliferous limestone is regarded by them as useful in giving glimpses into the structure of the fossils or of the stone as a whole. If the palæontologist could find a new crinoid genus, or a new brachiopod, by the aid of sections made in polishing the stone, he would feel thankful; and if the petrologist could by the same means throw some light on the origin of the crystalline matrix, or on the metamorphosis of the original organic remains into such fine calcite crystals with perfect cleavage as we see in the crinoid stems and calices, he would be delighted; but architects make a mistake in imagining that geologists are much acquainted with marbles, building stones, and the like, in the application of the materials. Things were different sixty years ago, but the spirit that was abroad when the Museum of Practical Geology was founded, is almost defunct at the present time—at least, so far as the scientists are concerned. Whatever names might have been given by the pseudo-palæontologist to the Derbyshire marbles at the beginning of the century, and subsequently hashed up by the ubiquitous "natural historian" until they have assumed their present shape, it is not too late to inquire whether any of the appellations are founded on fact, and if so, which of them is the most appropriate. It is

* The italics are ours, as in other words of the paragraph.—ED.

absurd to use five or six different names for one material.

With reference to the term "encrinital," we may state that the genus *Encrinites*, or more correctly *Encrinus*, does not exist in the Carboniferous Limestone, nor, indeed, in any rocks of the Carboniferous system in this or in any other country; thus the marble ought not to be called "encrinital," even if on philological grounds such a word could be sustained. The same remarks apply to "encrinoidal," which, however, is still more a barbarism. As to the term "entrochal," that, obviously, has reference to the wheel-like aspect of the crinoid stems when seen in transverse section, and is not altogether out of place. But when we observe that one definition of the word is "containing entrochite" (*sic*) we are tempted to pass on, the more so that the vast majority of the markings do not in any way resemble a wheel in form. "Grey fossil" is not so bad until we reflect that ever so many different kinds of marble are "grey" and contain fossils; the term is not specific enough. Then, finally, we have to deal with "crinoidal"; this word is derived from the presence of the remains of crinoids in great abundance in the stone. It is unquestionably the most appropriate, only that a purist would possibly prefer "crinoid-marble," as being better compounded. And for the varieties we may adopt some such nomenclature as the following: "grey crinoid," "red crinoid," "coarse crinoid," and so on.

In reality the stone is made up of the *débris* of organic remains held together by a crystalline cement. Conspicuous amongst these are segments of the "stem" and other hard parts of the crinoid genus *Actinocrinus*, and its allies. The varying lengths and diameters of these segments, and the irregularity of their disposition (lying as they do in divers positions), constitute the chief features of the pattern of the marble. In producing the surface, the saws or moulding machines cut them in various directions, revealing elongated pieces in one part, and round spots and oval patches in others. These, together with countless numbers of smaller fragments of crinoids, derived for the most part from the breaking up of the "arms," are lighter in tint than the bulk of the crystalline cement alluded to, which may therefore be termed the background of the marble. The varieties of the stone as known in the market are largely determined by the colour of this background. In one it is a fairly uniform dark grey, in another a light brownish grey, whilst a third (not a very common variety) is similar to the last-mentioned, with the addition of a little pink, possibly iron, sparingly distributed throughout. The darker the background the more conspicuous the larger organic remains become. The "grey crinoid" marble is the most characteristic kind produced in the neighbourhood of Ashford and Bakewell, at which last-mentioned place there are also polishing works.

A variety known as "Russet" marble is quarried on Sheldon Moor. It differs primarily from the "grey crinoid" in that the organic remains are developed on a much smaller scale. Nevertheless they are chiefly those of crinoids. The background is about the same shade as that of the "grey fossil," except for the presence of a slight suspicion of brown in it.

Another kind, the "birdseye" marble, is a very fine-grained material of a deep but variegated brown tint with numerous white specks, the latter being chiefly the remains of crinoids. From the circumstance that the stems of these are frequently cut transversely, they appear as small round specks with a dark centre, in section—hence the fanciful representation of a bird's eye, from which the marble derives its name. It is raised in quarries near Sheldon.

The variety of the marbles polished in the Ashford area, to which we may lastly draw attention, is in some respects the most interesting of them all. It is the "coral" marble from Tideswell. Unfortunately, at the time of our visit the quarry was closed, and had the appearance of having been so for a long time. When the stock of the stone at the polishing works is exhausted, we presume the quarry will be reopened, if it is not already, for it is unquestionably one of the best marbles in the county. Nothing could be more picturesque than the crag forming the outcrop of this band of the Carboniferous Limestone by the roadside. The rock is full of beautiful corals, and (though it does not augur well to say so from the point of view of durability), these being clearly weathered out stand in relief, like delicate carvings on the sombre background of the material. This, however, is a short distance from the quarry itself. The great variety of pattern in the marble is produced by the divers directions in which the cœnenchyma of each coral is cut; transverse sections show every stage from the earliest beginnings of the growth of the animal to the rim of the matured calyx, consequently the radiating septa, primary and secondary, are ever changing in size. By the development of synapticulæ to a remarkable extent, many of the individuals present a net-like appearance, whilst the wall and epitheca of certain of them lead to the formation of a dark inner ring surrounded by a lighter one. Longitudinal sections of the corals also occur in infinite variety. It is very difficult to satisfactorily describe the colour of the marble. Regarded at the distance of a few feet, it is seen to be a dark brown with streaks and patches of a lighter tint. Regarded more closely, a somewhat opalescent appearance is defined in a few of the coral sections, whilst much of the background is a dull yellow.

It would serve no useful purpose to describe in detail the uses and misuses to which these marbles are put. The greatest part of them are manufactured into chimney-pieces, slabs, small pilasters, and the like. Broken fragments, &c., are made into mosaic work, which is an important industry in the district. It must not be imagined, however, that all the marble used in the mosaics, any more than that worked up into chimney-pieces, is raised in Derbyshire. Some of it is unquestionably Carrara and Sicilian. It may seem curious, but in that out-of-the-way village Ashford we saw marbles from China polished, which clearly shows the necessity for knowing what marbles are really raised in the county when we desire to have the genuine Derbyshire article. It is only right to mention, though, that the courteous proprietor did not in any way attempt to disguise the source of origin of the foreign marbles referred to.

Knowing how difficult it is to obtain clear information as to the size of blocks procurable, especially with reference to monolith columns of marble, we were at some pains to go into the matter. The following table gives particulars on these points:—

Ashford Marbles—Size of Blocks, &c.

Name of Marble.	Size of Blocks.	Size of Columns.	
		Length.	Diameter.
	ft. in. ft. in. ft. in.	ft. in.	ft. in.
Black	0 9 × 6 0 × 5 0	6 0	0 9
Rosewood	2 6 × 2 6 × 1 6	2 6	1 6
Russet	10 6 × 5 0 × 1 6	10 0	1 6
Birdseye	8 0 × 2 0 × 5 0	8 0	2 0
Grey Fossil	10 0 × 5 0 × 0 9	10 0	0 9

At certain times thicker beds are met with than appear in the above table; the "grey fossil" (or "grey crinoid," as we prefer to call it) is especially liable to vary, but not to the extent of more than a few inches. From this we see that the commonest and best-known marble in the district occurs in very thin beds, suitable for slabs and the like, but not thick enough for large monolith columns. The "Birdseye" marble is better in that reepect, though it only occurs up to 8 ft. in length. The "Rosewood" is found in small blocks; whilst the thinness of the Black marble precludes its use for many purposes which its general excellence otherwise fits it very well for.

Turning now to another district in Derbyshire, that of Hopton, in the vicinity of Wirksworth, we note that the marble industry is yet on a larger scale. We find it very difficult to appreciate the difference between the "marble" and the "stone" trade there, and a fine point is raised as to what constitutes a marble. If architects were asked whether the light grey stone from Hopton Wood, of which a great part of the interior of the Imperial Institute is built, was marble, the majority would answer in the negative. Yet it is polished, and so is the greater part of the Hopton stone sent far from the locality. Of course, in a strictly scientific sense, none of the stone we are speaking of is marble, that term being reserved for a crystalline limestone of metamorphic origin, such as that from Carrara. We are using the term marble as it is used by architects; and if polished limestone, like the bulk of that from Hopton, and which is generally known as "building-stone used for ornamental purposes," is not marble, then none of the other polished stones from the same locality, nor from Derbyshire generally, nor from Devonshire, have any right to be called marbles. The Hopton Wood building-stone in the market does not differ materially from the "Birdseye" marble previously described, nor, indeed, from the "Grey Birdseye" marble from Hopton itself, except in regard to colour, and in one or two minor points presently to be noted. Broadly speaking there are six varieties of stone worked in the neighbourhood, of which five are termed marbles and one building-stone; we shall call them all marbles. They are as follows:—(1) "Grey Fossil;" (2) "Red Fossil;" (3) "Grey Birdseye;" (4) "Black Birdseye;" (5) "Light Hopton" (building-stone); (6) "Dark Hopton."

We did not visit the whole of the quarries in the district. The following are examples of what we saw:—

Section at Coal Hills Marble Quarry, near Wirksworth. (Fig. 1.)

	ft.	in.
1. Rubble and made earth.		
2. "Bluish grey fossil" marble	1	6
3. "Red fossil" marble, with "grey fossil" in places	2	0
4. "Dark fossil" marble (best bed), mixed occasionally with "grey birdseye"	8	0
5. "Light grey birdseye" marble	2	0
6. "Dark ,, ,,"	1	6
7. "Black birdseye" marble, in two beds, 1 ft. 6 in. and 1 ft. respectively	2	6

Blocks of practically any length may be obtained, but the above thicknesses appear to be the ordinary run of the material. The stone is drilled by hand only, and the average rate of penetration, with two men striking the drill, is 5 ft. in two hours, for a hole 1½ in. diameter. The refuse from the quarry is used principally in the manufacture of tar paving. The material is put through a crushing-machine driven by a 10-horse-power engine, capacity 200 tons per week. Some of the stone is hand-broken, however.

A mile or two from this is an enormous working, which may be divided into two sections, one relating to a higher horizon in the Carboniferous beds than the other, whilst the particulars were obtained at two different spots.

Sections at Middleton Wood Quarry, Hopton Wood.

		ft.	in.
A.—Upper working:—			
Overburden	1. Clay and rubble	3	0
	2. Rubble	17	0
	3. Thin parting of clay	0	1
	4. "Dark Hopton" marble	9	0
	5. This occurs in six beds; when sound it is used and called "Light Hopton" stone	30	0
	6. "Old white" bed, largely exploited	14	0
B.—Lower working:—			
	7. White stone, mostly used for kerbs and setts, in several beds	20	0
	8. Clay in two beds with partings of stone. It varies from 1 ft. to several feet in thickness, say	5	0
	9. White stone, in several beds. The "best white" for polishing comes from this horizon	60	9

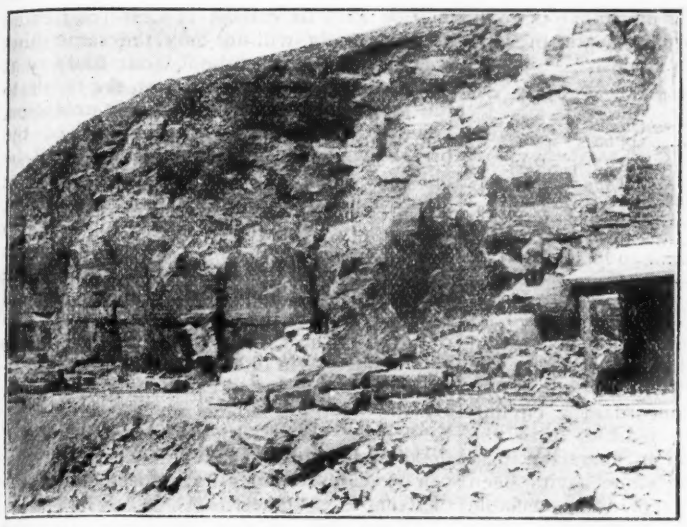


Fig. 1.—View of portion of Coal Hills Marble Quarry.

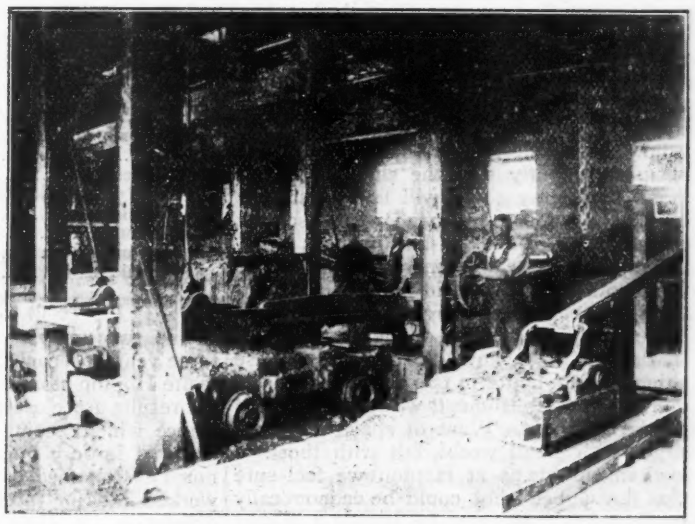


Fig. 2.—Marble saws and frames; also polisher (in the right foreground of the view).

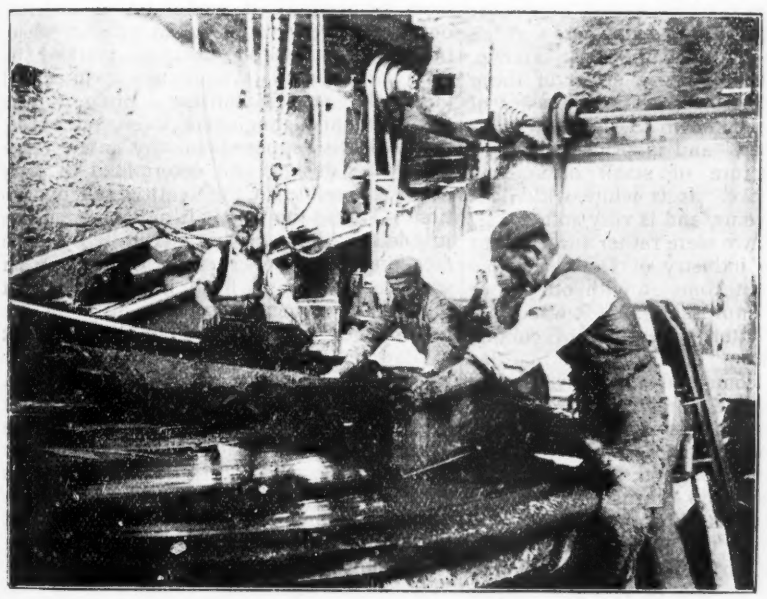


Fig. 3.—Circular rotating marble-rubbing table; lathe in the background.

Fig. 4.—Hopton Wood marble, finished and temporarily fitted at the works.

As will be gathered from the above, these are very large quarries, and employ over 100 men. It is rather a contradiction in terms to say Middleton Wood quarry, Hopton Wood, because the quarries are not situated in the latter wood, but the former; the stone used to be quarried at the latter place. But the material is so well known as "Hopton Wood," which is only a very short distance away, on the opposite side of the valley, that we prefer to adhere to the older name.

Only the rough stone is blasted; good blocks are levered from the face of the workings by "plugs and feathers." Drilling work is done by hand only, and the rate of penetration, two men striking, is about 5 ft. per hour for a hole of $1\frac{1}{2}$ in. diameter. The tamping used is clay and small pieces of stone. The material does not split very easily, though the grain is tolerably uniform. The system of haulage from point to point along the face of the workings, to the polishing sheds, and finally to the railway, is rather elaborate, and is practically unique so far as this country is concerned; but we need not go into that matter now.

The machinery at the masons' depôt attached to these quarries may be summarised as follows:—In addition to the usual complement of gantrys, and lifting gear generally, there are several frames for sawing the marble blocks into slabs (fig. 2); rubbing tables revolving on spindles, and made of iron, one of which is 13 ft. in diameter, and another 6 ft.; the stone is rubbed preparatory to being polished by being weighted and then placed on the revolving table (thirty-two revolutions per minute), from the centre of which to the circumference beams of wood are fixed at intervals, against which the stone rests whilst the table moves round underneath it (fig. 3); a polishing bed (fig. 2); and three stone lathes, one of which takes columns up to 16 ft. in length, and as much as $3\frac{1}{2}$ tons in weight, the whole being driven by a powerful steam-engine.

All moulding work is polished by hand, on which account there seems to be room for improvement. When several stones are employed for one moulding, or for pilasters, they are fixed in plaster of Paris side by side and all polished together so that the surfaces shall run evenly. The white stone is used for practically all architectural purposes, polished and unpolished, and for the construction of monuments, whilst certain varieties are worked up for kerbs, setts, and pavements; for inside work it is often fixed as "diamond paving." We noted that where a column, or moulding, consisted of several pieces of stone, the polish revealed the fact that they were frequently variable in tint, a light-coloured stone sometimes being sandwiched between two rather darker ones, and *vice versâ* (fig. 4). This may or may not be detrimental to the material from the point of view of its appearance, depending on taste; in any case we imagine that the manufacturers could easily so arrange matters that this did not occur, by judicious selection of the blocks. It is next to impossible, however, to tell the precise tint (to within a slight degree of shade) that will be assumed by a rough block of stone on its being polished, and great experience is demanded to estimate the tint even approximately. The polish also indicates that the tint is variable in one and the same block, and some blocks present quite a piebald appearance; this, of course, was not so noticeable in the stone when not used as marble. Other than this we have nothing but praise for the material, as a marble, especially for interior decoration. The stone must be durable and is very suitable, in the unpolished condition, for outdoor work—that is, the light Hopton stone. The material is not in any sense a freestone, it is too hard and crystalline for that. Its general behaviour when used on a large scale can nowhere be better judged than in the Imperial Institute, though it will be found in numerous other public and in private buildings.

The sawing done in this stone-yard was accomplished with "grit-sand" from Matlock and the River Trent. Judging from what we saw, the work could be performed much more rapidly, and quite as efficiently, by the employment of chilled shot, which, however, would have to be of very fine grain; but we merely throw this out as a suggestion. The manager is an extremely competent engineer, and doubtless understands the material

much better than we do. Chilled shot has been strongly objected to in the few small marble-polishing establishments in England that have come under our observation, where it has been tried, but we are not convinced that the objections raised were valid. As a rule we find that the shot has not been properly used, the chief complaint being that stray shots will find their way under the rubber or polisher, and scratch the surface of the all-but-finished work. This points to carelessness, for quartzose fragments ot sand used in the sawing might, to use the same reasoning, be placed in the same circumstances, and do the same amount of damage. Anyhow, they manage these things a little better in two or three marble-converting establishments we recently visited on the continent. Want of space might be urged with small works, but with those of such magnitude as at Hopton we feel sure that the chilled shot could be economically employed. That must be largely a matter of experience, however. After being sanded, the Hopton marbles are treated with No. 1 emery flour, and the polish is finally brought out by the application of putty-powder.

The varieties of marble raised in the vicinity of Wirksworth have already been alluded to by name. Commencing with the "grey fossil" raised at Coal Hills quarry (fig 1), we may say that it does not differ materially from the stone of the same name coming from Ashford, with the exception that it is slightly warmer in tint, containing some yellowish-brown colouring matter; as before, we should call it "grey crinoid" marble. The "red fossil," also, is of a brighter colour, and deserves the name "red," this colour pervading not only the crystalline background, but the darker portions of the crinoid fragments—it is a handsome marble, also from the Coal Hills quarry. The same working yields the "grey birdseye," a stone of brownish tint made up of myriads of small fragments of crinoids. It differs from the "black birdseye," apart from its tint, in that the latter has more comminuted shelly material. The last-mentioned marble is blacker than the "birdseye" from Ashford, whilst the light-coloured specks are smaller. The "dark Hopton" marble is composed of pieces of the tests of brachiopods and small crinoid fragments in about equal proportions, bound together by a crystalline cement of calcite. It differs from all other Derbyshire marbles mentioned, in that the larger fossil remains are of a darker tint than the matrix in which they are set; the whole is a light brown colour. The "light Hopton" marble and "building stone" is similar to the stone lastly described, only that in general the fossil remains are very much smaller (though larger fragments occur here and there) and the material is lighter in tint. In ornamental inlaid work from the Hopton Wood quarries one sometimes sees onyx-looking pieces of stone employed; these are polished stalactites, stalagmites, or pieces of vein stuff found, as aragonite, in the workings; the supply is very limited.

The following are particulars concerning some physical properties, &c., of the materials under review:—

Strength of Hopton Stone.

Middlepeak stone crushed at	811·4	tons per sq. ft.
Hopton building stone	,, ,,	444·4	,, ,,
"Birdseye" marble	,, ,,	812·7	,, ,,

From these figures it will be gathered that all the stones are much stronger than ordinary limestone freestones.

Weight and Absorptive Properties of Hopton Stone.

Description of building-stone.	Weight per cubic foot.			Water absorbed per cubic foot, 30 hours' immersion.
	Dry.	Wet.	As quarried.	
	lbs.	lbs.	lbs.	Pints.
Hard Bed	168·5	169·0	168·5	·4
Dark Bed	155·5	158·0	156·5	2·0
New Hopton	159·5	161·5	160·0	1·6

Neither of the materials can, therefore, be said to be very absorptive, though the dark bed stone imbibes rather more than is good for it. The amount of quarry-water present is less than usual in such stones.

Chemical Composition of Hopton Stone.

Lime	55·30	55·40
Carbonic acid	43·60	43·64
Silica	0·75	0·14
Magnesia	0·45	0·27
Oxide of iron and alumina	0·25	0·25
Phosphorus	trace	trace
Sulphur	trace	trace
Moisture	0·10	0·02
Organic matter	—	0·06
Totals	100·45	99·78

The two analyses were made just within three years of each other, and refer to the white Hopton stone. It will be noticed that the results are closely concordant, a circumstance which seems to indicate that the material is very uniform in character, inasmuch as the face of the stone having been worked into for three years no appreciable difference in chemical composition was observed. The analyses indicate also that the limestone is excellent from a metallurgical point of view; it makes a good flux to iron and steel smelter owing to its almost entire freedom from phosphorus and sulphur.

The only other marbles raised in Derbyshire of any note, are the alabasters and the fluor spar, the latter being best known, perhaps, as "blue John"—if either of these can be called marbles. The alabaster of Chellaston Hill is known in the district as "Derbyshire spar," and is principally used in the manufacture of small ornaments, vases, and the like. It is white, with light yellow and red veins, and is very soft.

On the whole, we were rather surprised to find the marble industry of Derbyshire so large as it is; in common with others, we were under the impression that it was practically a dead letter, excepting, of course, the Hopton stone district. The marbles have much to commend themselves. We do not care for the "grey crinoid," though, as before mentioned, this is very extensively made up into mantelpieces, small pilasters, &c.; the pattern is not good, the large white crinoid stems are too obtrusive. But the finer-grained marbles, all of them of subdued tints, and especially the "dark birdseye," are handsome decorative materials, whilst the "black" marble is one of very few similar stones exploited in this country; it is unfortunate that it does not exist in thicker beds.

THE PROPOSED NEW VAUXHALL BRIDGE.

SINCE last week we have received some further information in regard to the Institute of Architects' design for the new Vauxhall Bridge than was indicated in the *Journal of Proceedings*, though the actual design is in the hands of the Bridges Committee of the London County Council, and is kept, technically at least, a private matter. But we now feel no doubt that the bridge as proposed by the Institute Committee would be a far better thing than there is the least chance of it becoming if carried out as proposed by the Engineer of the County Council. The proposed widening of the piers to 17 ft., as against the 12 ft. proposed by the engineers, is in itself a very important step in the direction of giving a monumental character to the construction, and there is no practical reason whatever against it; that is to say, the difference it will make in the waterway will be of no practical importance. The idea of the Institute designers is that no ironwork should be carried past the piers, but all stopped against them; and the corbelling out of the foot-walk was, it appears, devised partly with the object of giving a greater effect to the mass of the piers, against which the footway would be stopped, leaving the main portion of the girders set back and in shadow. This, we admit, would be very effective, though we still think that the design of the present balustrade, which it is proposed to reproduce with some trifling modifications, and which may be said to consist of cast-iron treated architecturally, will not look the same thing when placed on a corbelled out footway as it does when forming, as now, the finish to the main construction. With this exception, however, the proposed treatment of the bridge would be as good as can well be obtained under the compulsion to adopt steel and not masonry for the arches. The spandril ties it is proposed to show nearly as they are constructed, as upright ties, in somewhat the same manner as in the present bridge. A good deal of trouble has been taken over the design of the stone piers, which would be satisfactory in effect and somewhat original, without losing breadth and simplicity. By the adoption of this design there is a chance for London to have a new bridge of good architectural character, as far as this can be achieved under the imposed conditions of using steel arches.

As to the design proposed by the engineers, if one may judge from an illustration of it which seems to have been surreptitiously communicated to a daily paper some time since (for the Committee, or the engineers, are guarding it most jealously from inspection), it would be, if erected, one of the very worst, in an artistic sense, of all the London bridges, marked by all the tawdry would-be-architectural gimcrack of Blackfriars Bridge. The County Council engineers, it is understood, are violently opposed to any interference with their design, and determined to carry it out if possible in the teeth of all opposition. This is the usual attitude of engineers in such matters, arising naturally from the fact that they never study design in an architectural sense, have not the slightest idea what it means, consequently do not understand the meaning of the disgust excited in the minds of artists by their work, and probably imagine that it is a mere piece of interference on the part of architects who want to put themselves forward. As a matter of fact, in the present case the Institute of Architects were directly invited by the Bridges Committee to submit a design of their own, and therefore any accusation of interference on their part, from the engineers, is absurd. We believe there are members of the Bridges Committee who are fully alive to the desirability of securing a fine bridge for London on this opportunity, and it is to be hoped that they will stand firm, and be deaf to the objections of the engineering department, which are merely the result of a dislike to be interfered with by architects. The design of the bridges over the Thames is a very important element in the architectural aspect of London, and it is really monstrous that we are to be compelled to have a vulgar and tawdry erection thrust upon us, merely because engineers know of nothing better, and cannot understand why any one wants anything better. Let engineers learn a little about design in the architectural sense; or if they cannot or will not do that, let them at least be a little more modest and a little more ready to give way on a matter on which they are not competent to form an opinion.

NOTES.

THE article in the current number of the *Quarterly Review*, on "Londoners at Home," contains a good many truths trenchantly expressed, more especially in regard to social conditions. But the whole article is much vitiated by an overacted pessimism, which seems to include an entire forgetfulness of the immense improvements in sanitation and construction which have been made during the last half-century. It is stated that London houses and the dwellers in them were much more clean and cleanly sixty years ago than now. How can such an assertion be maintained when we know that at the time mentioned such a thing as a bath-room was unknown in an

ordinary London house? The article urges that people should do their clothes washing at home. Why? And where are most of them to do it? The establishment of large wash-houses and laundries has been of the greatest advantage, both to the comfort of London houses and to thoroughness of cleansing. The suggestion that the children in Board Schools should be made to clean their own schools, as sailors clean their own ships, has something in it, perhaps, as providing a useful training in the art of keeping houses clean. A suggestion that much illness in London arises from the extremes of heat and cold, in summer and winter, in attic sleeping-rooms, is probably true, but to say that more ill-health arises from this cause than from defective drainage is absurd. Where drainage is defective, people are certain to suffer in health from it, the strong and the weak alike; but it by no means follows that all sleepers in attics suffer in health. The article is one which is worth attention, but as a comparative picture of London now and half-a-century ago it is most unfair, and entirely ignores a progress in sanitary measures which has been one of the most remarkable characteristics of the latter part of this century in England, and in London more especially.

WE have received a copy of "A Form of Agreement and Schedule of Conditions for Building Contracts," dated July, 1895, which is published by, and with the sanction of, the Royal Institute of British Architects, and which supersedes "The Heads of Conditions of Builders' Contracts," dated 1882. The conditions are intended for use where the quantities do not form part of the contract, and they practically comprise the whole of the old conditions in a revised and amplified form. The wording is more explicit, and the terms of some of the conditions are less arbitrary in their provisions than hitherto. The additions that have been made include the definition of the Clerk of the Works, as inspector under the architect, the definition of the term "prime cost," and a suggested mode of treating the provisional sums in a contract. Reference is also made in various clauses, to access to workshops or other places where work comprised in the contract is being executed, to the question of extras comprised in architects' details or instructions, the ownership of materials not fixed, the defects in sub-contractors' work, the uncovering of work for inspection, and the allocation of its cost. The following clause will be interesting to quantity surveyors, and supplies a need:—"The fees for the bill of quantities and the surveyor's expenses (if any) stated therein shall be paid by the contractor to the surveyor named therein out of and immediately after receiving the amount of the certificate or certificates in which they shall be included. . . . . If the contractor fails or neglects to pay as herein provided, then the employer shall be at liberty, and is hereby authorised, to do so on the certificate of the architect, and the amount so paid by the employer shall be deducted from the amount otherwise due to the contractor." The conditions have undoubtedly been much improved, and may now be considered up-to-date. The majority of the alterations have, however, become quite familiar to most of our readers in the well-written specifications of present-day practice.

WE have received also from the Institute the new papers for the four series of Examinations, for passing respectively as Probationers, Students, Associates, and the special examination for those who wish to pass as Associates, and who are in a position to be exempted from the Probationers' and Students' Examinations, and from sending in "Testimonies of Study." Such applicants can be admitted (by resolution of the Council in each case) to a qualifying examination, on the lines of the Final or No. 3 Examination, but conducted with especial regard to the requirements of such applicants, their professional work and position being duly taken into account by the Board of Examiners. The distinction, however, between the "Final" and "Special" examinations appears to be only in the form of application and the nature of the "Testimonies of Study," which in the case of the special applicant must consist of the working drawings of any building erected from his design and under his superintendence, together with a drawing of a building in perspective, and a sheet of ornament drawn from the round. These two latter might be questioned, seeing that a man may be able to carry out a very good building without being able to make a good perspective drawing of it, and may be able to model ornament well without being able to draw it so well. It might have been well to give the option of sending a model or a drawing of ornament. That every architect should understand perspective is no doubt most important, but his drawing in such a case should be judged by the knowledge of perspective evinced, and not by its mere effectiveness as a drawing. Generally speaking, the points for examination in the three stages are very well grouped and selected, and form a valuable outline for the course of study of a young architect. They will not, as everyone knows, make a man an artist in architecture, but the passing of them will ensure that he understands a field of work in which there is a great deal to be taken account of besides artistic design.

THE first penalty under the Rivers Pollution Act has at length been inflicted, and not a day too soon. Nineteen months ago an order of the Court was obtained by the Ribble Joint Committee requiring the Accrington and Church Outfall Sewerage Board to carry out an efficient scheme of sewage-purification within eighteen months. The members of the Board have thought about the matter, and have even made experiments, but they have taken care not to spend any money on a practical scheme. As one of the members naïvely said, "While we are experimenting we are delaying, and that is what we want." Exactly; but the judge did not take quite such a light-hearted view of the matter. He inflicted a penalty of 10*l.* a day for the twenty-eight days beyond the stipulated time—that is to say, 280*l.* in all—with costs on the higher scale. Surely the Mersey and Irwell Joint Committee can obtain similar convictions against the authorities which have converted the Manchester and Salford Docks into stinking cesspools.

WHEN the case of Wright *v.* Henessey came before a Divisional Court of the Queen's Bench Division on an application for an injunction, we pointed out that the most important decision would be that given in the final trial. That trial has now taken place, and a report of it is given in another part of this journal. It seems to set at rest any question as to the right of anyone acting on behalf of a trades union to endeavour to carry out the objects of such union by injuring an employer of labour. The jury found that the letters written by Mr. Henessey, the organising secretary to the National Association of Operative Plasterers, in respect to the plaintiff, who was a master plasterer, were written with the intention of injuring him. The jury also found in the plaintiff's favour on the allegation that the defendant had endeavoured to induce persons to break their contracts with the plaintiff, and they gave in all 800*l.* damages. As a matter of fact the aggressive power of trades unions lies in the ability to injure individual employers. This case will probably aid materially in putting an end to such tyranny. Aggressive action, such as gave rise to this litigation, is quite foreign to the true aims of a trades union, which should be protective and not aggressive. There was no more withdrawal of plasterers from the plaintiff's employment, but it was the defendant's intention, to use his words, that "Wright should go," that is, not be allowed to take any contracts. We may observe, also, that it seems doubtful if the defendant, even from his own point of view, had correctly ascertained the facts on which he founded his view of the plaintiff's so called misconduct or unfairness.

THE letter in Saturday's *Times* by Mr. George Forbes, the Engineer to the Niagara Cataract Construction Corporation, shows at any rate that some electrical engineers are not troubled with any mock modesty. Mr. Forbes may have no hesitation in saying "that the low cost and perfect success, practically and commercially, of the Niagara Works opens a new era in the world's "industrial evolution;" but, even granting his assumption, we think that the new era began some ten years ago, when the alternating dynamo began to take its modern form and work with its present high efficiency. We all know that Mr. Forbes was one of the pioneers of electric lighting, but he is taking too much credit to himself for the Niagara Works. The engineers of the Cataract Construction Company went round to different constructors in Europe seeking for information. The company had also the advice of the best electricians in Europe and America, Lord Kelvin and Professor Rowland amongst others. It is true that they did not take the advice of Lord Kelvin, and we have Mr. Forbes' word for it that they did not take Professor Rowlands', but it does not at all follow that if they had, the enterprise would have been a failure. The tender sent in by Messrs. Siemens' Brothers for constructing the works at Niagara proposed to supply continuous current. Mr. Alexander Siemens, who is a very great authority on power transmission, says that he has always found continuous current the best. Mr. Forbes in his letter accuses Lord Kelvin of predicting failure to his system. This brought a disclaimer from Lord Kelvin in Tuesday's *Times*, and a reiteration of the charge by Mr. Forbes in Wednesday's *Times*. Anyone who knows Lord Kelvin's views is aware that he regards continuous current as the best solution, but it is impossible to believe that he would predict the failure of an alternating current system of supply, seeing that he has been, and is, consulting engineer to so many successful alternating current supply stations. Professor Silvanus Thompson's letter in Thursday's *Times* is beside the point, for it is too soon to refer to Niagara as being a crushing argument in favour of alternating *versus* continuous current supply.

AT the recent meeting of the Archæological Institute in Yorkshire an interesting point turned up, in the discovery at Lastingham Church of some portions of the boarded centering used by the Norman builders in the construction of the crypt (1078-1088). Mr. John Bilson, in the course of his description of the church, drew attention to these pieces of boarding, and the fragments were examined by Mr. J. T. Micklethwaite, Mr. W. H. St. John Hope, and Mr. C. E. Ponting, who all agreed that these bits of boarding were really parts of the original centering. This part of the crypt is vaulted in nearly square compartments, with an unribbed groined vault upon unmoulded cross arches. The ends of the centering-boards rested upon the extrados of the arches, and the mortar used in constructing the groining had run between the joints of the boarding, and so fixed it to the soffit of the vault, where several fragments still remain. The point is the more interesting as another proof of the unfinished condition of this fragment of a monastic church, when Stephen of Whitby and his monks left Lastingham to found the Abbey of St. Mary, York (c. 1088).

ON Friday, last week, there was a meeting at the monument to Captain Cook on Easby Hill, Great Ayton (on the Cleveland

range of hills), to celebrate the completion of the restoration of this, which is stated to be the only monument to Cook in his native land. Mr. J. Havelock Wilson presided on the occasion. The monument stands within sight of Marton, the birthplace of Cook, and of the farm on which he worked as a boy. The inscription, on metal plates, had been nearly obliterated by rust, and the door at the base of the monument had been removed, the interior having become a shelter for sheep. Sir Walter Besant, who, by his recent admirable, though concise, life of Cook, has done much to revive public interest in one of the most remarkable men England ever produced—a much greater man, both as a navigator and in his personal character, than we have quite remembered in modern times—took an active interest in the sheme; and subscriptions were raised among readers of the *North Eastern Daily Gazette*. The work done has consisted in pointing the monument throughout with Portland cement, replacing loose or broken stones, fixing a lightning conductor, building up the doorway with masonry in accordance with the rest of the structure, fixing a grey granite tablet for the inscription, and repairing the roadway leading to the monument. The work has been carried out by Mr. Grierson, builder, of Great Ayton. Mr. J. J. Emerson, the lord of the manor, has offered to erect a fence railing round the monument at his own expense. What is the value of the monument as a design we do not know, having never seen it, but being Cook's monument, we entirely sympathise with the effort that has been made to put it in better repair.

A LETTER from the Duke of Westminster in the *Times* of Thursday draws attention to the proposed absolute destruction of the Falls of Foyers on Loch Ness, by taking the whole body of water through a tunnel for the purpose of manufacturing aluminium by means of electricty. The Duke observes—

"The proposed factory will not only destroy the finest waterfall in the United Kingdom, it will also emit hydrofluoric acid gas, which will be most destructive to vegetation in the neighbourhood. In addition to this, it appears that the manufacture of aluminium will certainly create great spoil banks, which the company are under no obligation to remove should they at any time suspend operations, nor, in the event of such a contingency arising, are they liable to restore the Lakes of Stratherrick to their former levels, or to divert the water again to its original channel."

How far is this kind of thing to go? Is natural scenery henceforth to be a thing of no account, even when of exceptional beauty, in comparison with the exigencies of manufacturing companies? And will the obliteration of the beauties of Nature really be repaid to us, in relation to the general happiness of life, by any amount of cheap production in manufacture? It is a serious matter. The most objectionable feature in the whole business is the assurance of the agent of the Aluminium Company (quoted in the Duke's letter) that "the Falls would not be injured, only there will be no water in them." Is this stupidity, or is it sheer insolence?

LETTER FROM PARIS.

M. Dujardin-Beaumetz, the Deputy, who before entering Parliament was known as a historical painter, has made a proposal for ornamenting the Pont de la Concorde with a series of statues of illustrious men. This is a very old project. In 1810 Napoleon I. caused eight statues of generals who died on the field of battle to be placed on the pedestals which divide the balustrades of this bridge. In 1827 the Government of the Restoration replaced these statues, which recalled the Imperial *régime* too much, by those of Sully, Turenne, Bayard, Condé, Colbert, and others. The weight of these constituted a serious danger to the bridge; they had to be removed in the reign of Louis Phillipe; and it is these statues, of very doubtful artistic merit, which now form a sort of guard of honour in the principal courtyard of the Palace of Versailles, where they are ranged in a semi-circle round the statue of Louis XIV.

Eighteen years ago, the architect Duc proposed to the Municipal Department of Fine Arts to adorn the pedestals of the Pont de la Concorde with groups of children supporting lamp standards. As electric lighting had not yet come into fashion in Paris, and the gas-lamps did not suit the scheme very well, this project was abandoned, and the bridge remained as it now is. Without prejudice to the scheme of M. Jardin-Beaumetz, we will merely remark that, as a decorative scheme, it is of very little interest, especially as the State, if it wishes to find some work for sculptors, might better choose the large bridge which is to be built across the Seine, between the new Avenue des Champs Elysées to the Esplanade des Invalides. Here there would certainly be a great opportunity, if one may judge by the bird's-eye view which M. Bouvard has just completed, which shows what will be the aspect of the esplanade in 1901—that is to say, after the demolition of the exhibition buildings. This avenue, which will pass between the new Palais des Beaux-Arts and that of the "Arts Retrospectifs," will certainly be one of the finest in Paris. It will part from the main Avenue des Champs Elysées, near the Avenue D'Antin, turning slightly to the left, and will be bordered by plantations and gardens, ornamented with statues, and with a monumental fountain in the centre.

According to the scheme of M. Bouvard the removal of the Palais des Beaux-Arts will be carried out progressively, commencing with the eastern portion, so that, up to the last moment, two-thirds of the building will remain for the art exhibitions. Every precaution will be taken by the Department of Architecture for carrying out the works without injuring the Champs Elysées; the materials will be conveyed to the spot by the river, and a tunnel will be formed under the Cours la Reine, to convey them to the centre of the work. The Palais de l'Industrie is to be surrounded by a lofty trellis, covered with climbing plants, which will entirely conceal the works in progress. After the exhibition is finished, the "Palais des Arts Retrospectifs," to be built in a semi-circle on the left of the new avenue, will become the Municipal Museum of Painting and Sculpture. The Pont Mirabeau, which is to be completed very soon, between Grenelle and Passy, will also have its artistic decoration; and it is proposed to entrust to M. Injalbert the execution of the allegorical figures in bronze, to be placed on the balustrade over each pier of the new bridge, the principal arch of which over the river will be one hundred mètres wide.

The Municipal Council of Paris, as well as the Parliament, will have under consideration, in the October session, the scheme drawn up by M. Bouvard for a competition for the designs for the two Fine Art palaces on the Champs Elysées. The competition, for which three months' time will probably be allowed, will be opened immediately after the formal approbation of the plans by the two Chambers.

Among the new buildings which will be completed at the same time as the opening of the exhibition, special mention should be made of the Mairie of the Xth Arrondissement, one pavillion of which, that the angle of the Faubourg St. Martin and the Rue du Château d'Eau, is already completed. This is a charming piece of architecture, recalling the elegance and harmony of style of the best edifices of the Renaissance. It is much to be regretted that this charming building should be squeezed up in a crowded street, where it can never be properly seen, instead of being in the middle of a square or place. The part already completed does the greatest credit to the architect, M. Rouyer, who was the favourite pupil of Baltard.

An intercepting sewer is soon to be commenced from the Place de la Trinité to the gate in the fortifications leading to the Commune of Clichy. The cost of this work, which will be carried out underground, without interrupting public traffic, is estimated at 3,700,000 francs. This important work will be connected with the general scheme for the sanitation of Paris, and will enable the contents of the sewers of Paris to be conveyed into the Department of the Seine and Oise. These works have been commenced recently in the quarter outside the walls, and the new land necessary for the utilisation of the "Eaux Vannes" at Achères has just been secured. This first section, which ends at Val d'Herblaye, is 14 kilomètres long; the aqueduct crosses the Seine first at Clichy in the tube constructed by M. Berlier, and a second time at Argenteuil by means of four conduits of 1·10 mètres diameter, placed on the floor of an iron bridge, which carries a road 9·50 mètres wide. A special branch leaves the main canal at Herblaye, crosses the Seine by a siphon 210 mètres long, composed of two pipes of one mètre diameter each united by ties, passes under the Rue du Val d'Herblaye to the irrigation ground, where it is divided into three branches, provided with outlets which can be opened as they are required. The distribution can ultimately be extended over a larger area of land in view of the utilisation of the whole sewage of Paris, and to the despair of the inhabitants of Seine and Oise, whose charming properties are thus to be sacrificed to the sanitation of Paris.

For some months the Arc de l'Etoile has been hidden behind the immense scaffolding for its restoration, which is being carried on with a deliberation no doubt justified by the importance of the work. The Department of Bâtiments Civils, whose days are already numbered, ought to signalise its last moments by taking compassion on the Arc de Triomphe de Carrousel, which is also in great need of repair. The rosettes of the central arch are quite dilapidated, the capitals of the columns are in a ruinous state, and—which is still more serious—one of the consoles supporting the upper frieze is detached from the wall, and nothing has been done to replace it. Something ought to be done at once for the repair of this graceful erection. The Paris press has been urgently calling the attention of the Department of Public Works to the subject.

The Commission des Monuments Historiques is at present occupied over rather a delicate question. This is in relation to the ancient church of St. Denis, a building rich in works of art, and which ought to be a kind of museum open to artists and travellers, a place of artistic pilgrimage in fact. It appears that the Archbishop of Paris wishes to make of it a parish church for special religious observances, and, as a consequence, the building will be exposed to all kinds of risks. Christenings, marriages, and burials will be carried on in the midst of the sumptuous tombs of the ancient kings of France, altars of a trumpery character will be erected everywhere, and hangings nailed on to the wall on days of high festival. All the marvels of French architecture and sculpture which are here collected will thus from time to time be exposed to serious dangers, a matter of great anxiety to the Commission des Monuments Historiques. It is probable that the question will be brought before Parliament, which will be urged to take measures for safeguarding the treasures contained in the building. It is desirable, also, that artists should be able to make studies there without interruption, that visitors should be able to admire the building without being interfered with by the ceremonies which the Archbishop wishes to revive, instead of confining them to the neighbouring church, built by Viollet-le-Duc, which is amply large enough for the religious needs of the population of St. Denis.

The Department of Fine Arts has recently appointed a committee to study the question of the restoration of the Roman theatre at Orange, in order to give annual dramatic representations there. Although the place is in the Department of Vaucluse, nevertheless, as it is a question of making it into a kind of French Bayreuth, and an appanage of the "Maison de Molière," one may include the subject in a "Letter from Paris." We may say then that the action of the Fine Art Department has been severely criticised by various archæologists, especially by M. Charles Garnier and M. Viollet-le-Duc (the son of the eminent architect), who is the director of the Service des Monuments Historiques. According to M. Garnier, the restoration of the theatre at Orange would be "le plus abominable sacrilège." This splendid ruin, he said to an interviewer, is no better fitted for the presentation of modern drama than for the extravagances of provincial fêtes. The necessary preparations, apart from the mere work of repair, would destroy the character of the monument, and one could not protest too strongly, in the name of antique art against such mutilations of a great relic of ancient architecture. M. Viollet-le-Duc is of the same mind, adding that the theatre is totally unsuited to receive the decorations, the scenery, and the other mechanical accessories of modern drama. If a French Bayreuth is desired, well and good, and there are plenty of sites available. But the Government ought to confine themselves to merely keeping the theatre at Orange in repair, while respecting scrupulously its existing state. M. Chas. Wescher, member of the Archæological Institute of Rome, considers that the vaulting might be reconstructed, and the arcades completing the semicircle up to the point where it loses itself in the hill, and that a road 5 or 6 mètres wide should be formed round

the theatre. Any further modification, in his opinion, would be an act of vandalism. It is possible that in the face of these protests from people with such a special right to be heard on such a subject, the Government will abandon its project of turning this great Roman relic into a source of amusement for the crowd.

Among the most recent artistic commissions given by the State, are those for busts of Gounod, Fontenelle, Carafa, and Malibran, for the Opera-house; and for busts of Henri Regnault, Henri Estienne, Cardinal de Bourbon, and the Duc de Berry, for the Bibliothèque Nationale. The Opera-house has also received a fine bust of Berlioz, presented by an admirer of the composer. The Hôtel de Ville has within the last few days received a new stained-glass window, executed by M. Carot, the well-known glass-painter, after a cartoon by M. Lerolle. This window, which was in the Champ de Mars Salon this year, has been placed in the cloak-room of the Municipal Councillors.

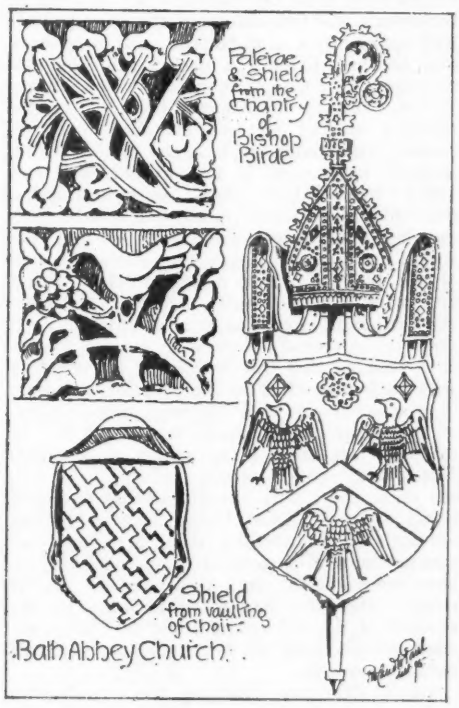
The Prix de Rome in painting has been gained this year by M. Gaston Larée, a pupil of M. Bonnat, and who has treated the subject, "The Holy Women at the Foot of the Cross," quite according to the traditions of official art, and with little or no personal originality. The second prize picture, by M. Albert Laurens, son of M. J. P. Laurens and pupil of MM. Cormon and Benjamin Constant, is a much more picturesque and interesting work. The Institut has at the same time given its award on the Troyon Prize (for landscape painting), the subject being "A Twilight Effect." Sixty-seven artists took part in this competition, and the prize was awarded to M. Hugues de Beaumont.

Alfred de Curzon, the painter, who has just died in his seventy-fifth year, was one of the last landscape-painters of the romantic school. He was a pupil of Drolling and Cabat, and made his début at the Salon, in 1843, by a picture which excited considerable attention. He subsequently visited Italy and Greece, the latter in the company of M. Charles Garnier, Edmond About, and Théophile Gautier. He received medals at the Salon in 1857 and in six other years, 1889 being the last. Among the most remarkable of his works were "Les Ondines," "Dante et Virgile dans les Enfers," "Le Tasse à Sorente," "Famille des Pêcheurs à Capri," "Rêve dans les Ruines de Pompeii," &c. His compositions recalled the style of Gleyre, as far as the figure-grouping and subjects were concerned, while his landscapes were evidently inspired by those of Benouville and Cabat. He occupied himself also with lithography and pastille.

It was the work of Gleyre, with its correct elegance of style, which furnished also the model to the old painter, Henri Picou, whose death we announced last week. It took place at Nantes, where he had lived during his latter years. The works of Picou, characterised by a poetic though somewhat mannered style, were much under notice after the Salon of 1847. It was since then that he devoted himself especially to the graceful subjects of a kind of neo-Greek order which are now entirely out of fashion, but which under the Second Empire obtained a great success. Neo-Greek was the mode then; remains of the taste of the period are to be found among the Parisian monuments of that date. "L'Amour qui Vient et l'Amour qui s'en Va," "Le Bain de la Sultane," and a good many other works of the kind, had a great success in their day, which is utterly forgotten now, but which procured their author a place in modern art, as well as a number of pupils and followers. He died at the age of seventy-one, having for the last twenty years gone into a kind of voluntary exile, declining to live any longer in a capital which had forgotten him.

SOMERSET ARCHÆOLOGICAL SOCIETY.

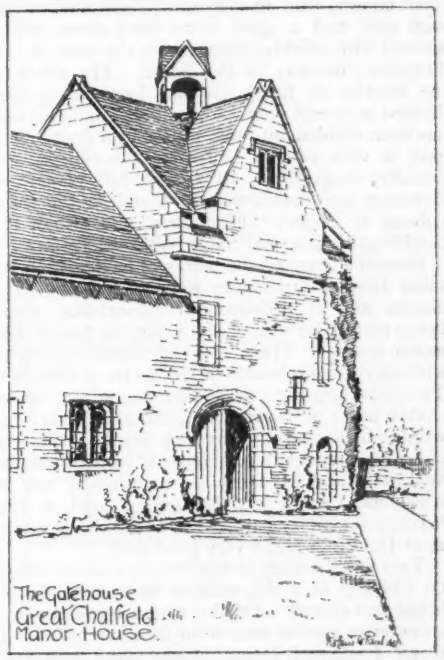
THE annual meeting of the Somerset Archæological Society was this year held at Bath, excursions being made into the districts lying north and east of the city, and including one or two places over the border in the neighbouring counties of Gloucestershire and Wiltshire. The first day, Tuesday, July 23, was devoted to the general meeting and business of the Society, the address by the President, Mr. H. D. Skrine, M.P., and visits in the afternoon to the principal objects of interest in the city—the Roman Baths, the Abbey Church, and the Museum at the Literary Institution. The plan and arrangement of the Roman Bath (over a portion of which Mr. Brydon is now erecting the new buildings, including a concert-room) was described by Major Davis, the City Architect, and some of the members afterwards adjourned to the Pump Room, where are exhibited some interesting jewels and cameos found at various times in the drains of the Baths. A description of the various features of the Abbey Church was given in the *Builder*



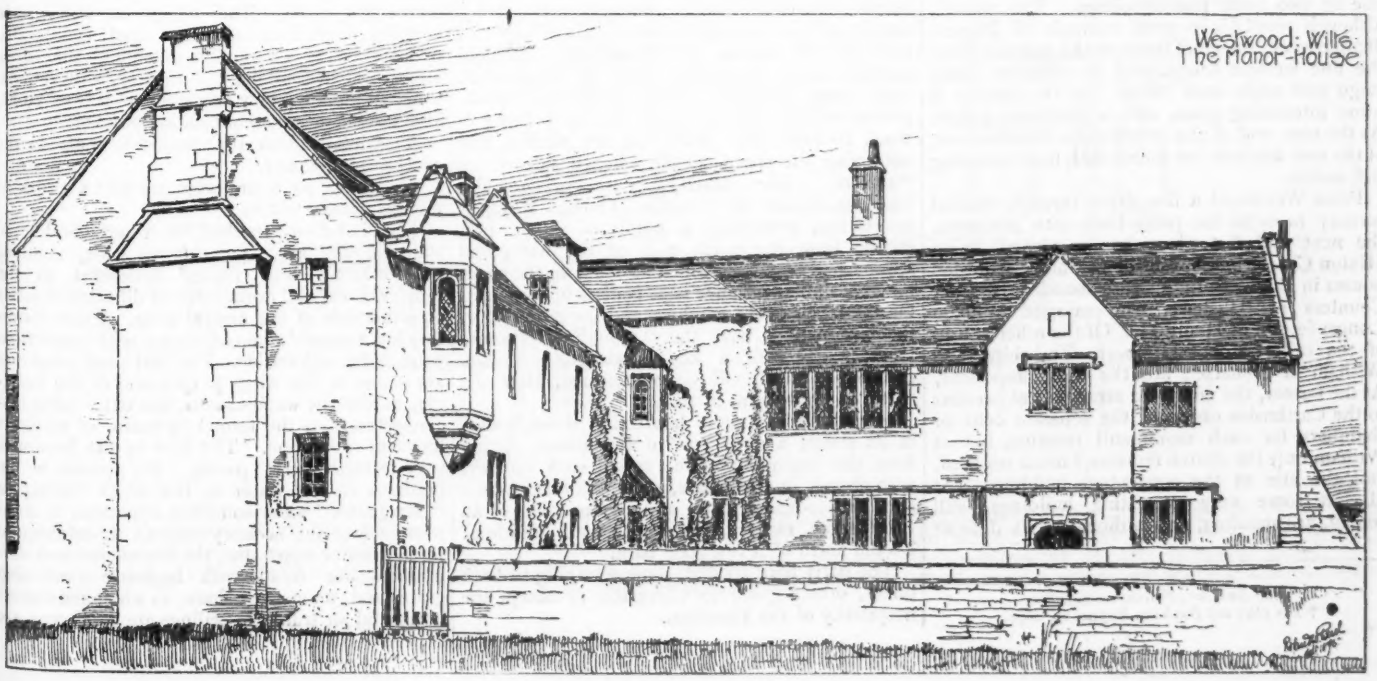
Series of Abbeys last year, with a plan showing the interesting remains of the Norman Church of John de Villula. Mention was then made of the Late Perpendicular Chantry in the Choir to Prior Birde, and we here give one or two bits from the carving on the chantry—two pateræ from the exterior with the Prior's rebus, a W and a bird, and his arms surmounted by a mitre and pastoral staff from the carved panel in the interior, at the east end. There are some interesting encaustic tiles at the museum of the Literary Institution and a valuable geological museum, besides many Roman antiquities found from time to time in the city. In the evening, papers were read by Rev. Canon Church, on the Cartularies of the Church of SS. Peter and Paul; by Rev. S. Holmes, on a Map of the Forest of Mendip, and some peculiarities of the Mining Laws; and by Rev. F. W. Weaver, on the Clyveden Family.

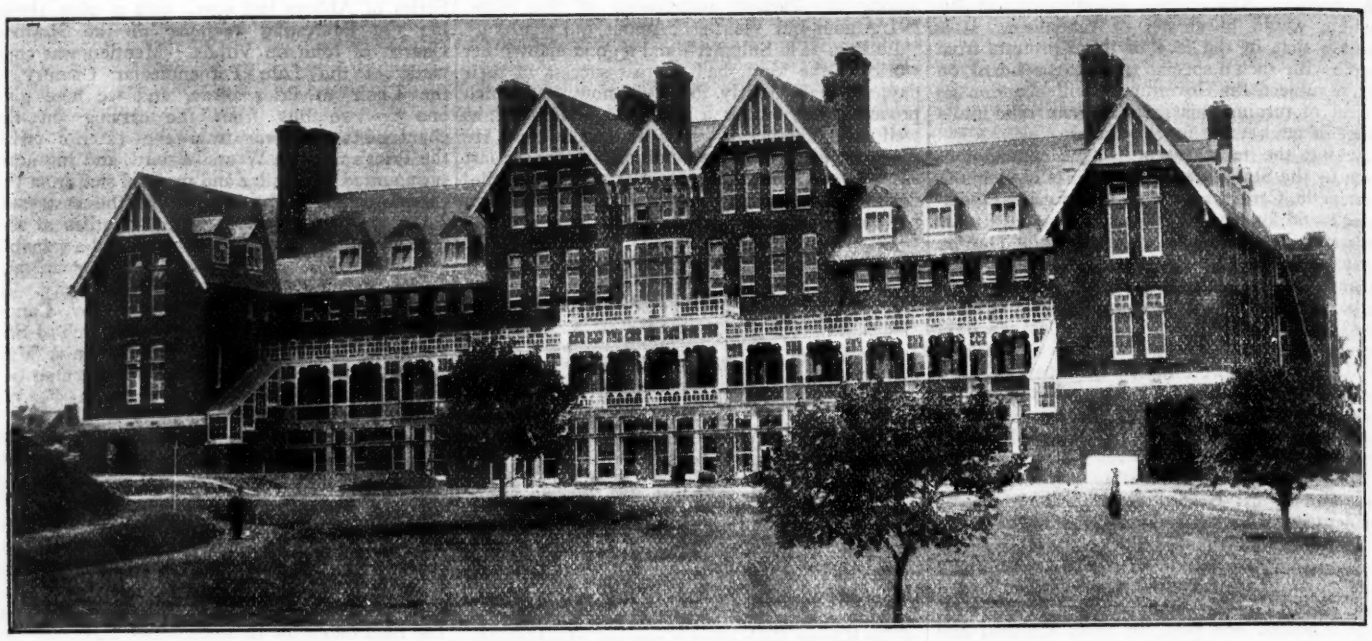
Notwithstanding the rainy weather, a considerable number of members and their friends joined in the excursions on the two following days.

Wednesday was devoted to the manor-house of Great Chalfield, Bradford-on-Avon, Westwood, and Hinton Charterhouse and its Carthusian Monastery. The first three items on the programme were over the Somerset border in Wilts. The road taken, by Grosvenor and Box, past the interesting house of South Wraxall, was a very beautiful one, with the fine views that are characteristic of the roads around Bath. The house and church at Great Chalfield lie some distance off the main road that runs into Bradford-on-Avon from the north, and the whole forms a very



picturesque group, surrounded for the most part by the original moat. The house is an interesting example of fifteenth-century Gothic, with a fine oriel and other windows, and a picturesque





Yarrow Home for Convalescent Children, Broadstairs. Messrs. Davis & Emanuel, Architects.

but simple gatehouse, later in date, probably, than the house itself. Forming the third side of the quadrangle (the moat forming the fourth) is the small church, with an interesting bell-turret at the west end, and a good stone rood-screen ornamented with shields charged with the arms of the Trapnells, builders of the house. The whole of the interior of the house has been much subdivided in recent years by partitions, and the hall has been divided into two stories by a floor. We gave a view of the house and church in the *Builder*, August 20, 1887, and full plans and elevations and details will be found in the third volume of Pugin's "Examples," and also of the neighbouring house at South Wraxall.

Bradford bears all the marks of having been for some time a flourishing town. Many of the houses are of architectural importance, there being more than one of the Georgian period well worth noting. There are two earlier examples with carved bargeboards in the centre of the town. Two churches, the parish church and the Saxon church north of it, were seen, and also the bridge, with its little chapel (a simple example of the type of bridge chapel still remaining at Rotherham and Wakefield and St. Ives),* a picturesque row of almshouses south of the bridge, and a fine fourteenth-century barn, with a double entrance, as at Doulting, and a very good roof.

Two miles distant is Westwood, a small village on the top of a hill, with an interesting manor-house and church. Of the manor-house we give an exterior view as seen from the churchyard. It is an L-shaped house, facing south and east. The south wing is the oldest portion of the house, and has a most picturesque series of windows, the oriel at the one end and the bay windows at the other making a charming variety. The east wing is a little later, with a gabled porch. Inside are one or two good plaster ceilings. The church, although small, is a good example of Perpendicular work, the chief point on the exterior being the fine western tower, with its panelled belfry stage and angle stair turret. In the interior is some interesting glass, and a Jacobean pulpit. At the east end of the north aisle, on either side of the east window, are niches with their colouring still visible.

From Westwood a fine drive through wooded scenery brought the party back into Somerset, the next and last place to be visited being Hinton Charterhouse, one of the few Carthusian houses in England, in this case founded by Ella, Countess of Salisbury, who married William Longspée, son of Henry II. Of the other houses of the order Mount Grace, in Yorkshire, and Witham in Somerset, are the most important. At the former, the complete arrangement peculiar to the Carthusian order, of the separate cells or chambers for each monk, still remains, but at Witham only the church remains,† much restored, and the site of the conventual buildings. At Hinton some very interesting buildings, still roofed, are standing, and although it is difficult without excavation to determine the exact arrangement of the buildings, there seems little doubt but that the eastern of the two principal blocks formed the slype sacristy, and Chapter-house of the monastery. Against the north wall are the remains of the vaulting-shaft attached to the church, and foundations of the church itself, with apparently a semi-circular eastern termination, had been found. A pentice ran along the west face of the Chapter-house and slype. About 105 ft. west of the Chapter-house is another building vaulted, in two chambers one, the smaller, with a large fireplace, and communicating with the large room by a doorway at one end, and a "hatch" at the other. At the east end of this building are three arches, two now blocked, showing that it was connected on that side with a building now destroyed. Along the south of this building is also a pentice, and westward are traces of a thick wall. Although the life of the Carthusian monk was spent chiefly in his cell, they met on special occasions in a refectory, and it is possible that this building is the refectory, with kitchen attached on the east side, and forming the north side with buildings now destroyed of the inner court, which was kept for the monastic use, entry being denied to strangers. North of the church would probably have been the outer court, with the guest-house and gate-house, and the "Abbey House," now a dwelling, although of Elizabethan date, may very well occupy the site of some of these buildings, and have more ancient work incorporated. On the return drive the interesting terraces—all that remains of the old manor-house of Claverton—were passed, being the last item in a most interesting excursion.

On the third day, Thursday, the excursion was to Lansdown, St. Lawrence's Chapel (a fifteenth-century chapel with house attached, now a farm), the site of the battlefield, and to the village and town of Cold Ashton and Marshfield. At Cold Ashton is an interesting house of Elizabethan date, very complete, with much woodwork, plaster ceilings, and a curious pantry or lobby of wood between the "hall" and the kitchen, and occupying the space on the kitchen side of the "screens." The church, a Late Perpendicular building, erected by a rector, Thomas Keys, is interesting, possessing a pulpit of stone, projecting from the north wall of the nave, and approached by a stair which also led to the rood-loft. A similar instance is at Nailsea in Somerset. On the labels of the windows and the porch door, the terminations have the "rebus" of Thomas Keys, a T with a key interlaced. At the parsonage Sir Bevill Grenville died, after the battle of Lansdown, in 1643.

Marshfield has many interesting stone houses in its street, a good row of almshouses, dating from the beginning of the seventeenth century, with chapel in the centre, a church of Decorated and Perpendicular date, and the remains of an Elizabethan manor house, with late additions. To the north of it is a good barn.

The party here divided, some returning to Bath direct, others going to Claverton to accept the hospitality of the President.

* See *Builder*, November 22, 1890.
† For plan see *Builder*, August 25, 1894.

YARROW HOME FOR CONVALESCENT CHILDREN.

On Wednesday last, the Yarrow Home, at Broadstairs, was opened by the founder, Mr. A. F. Yarrow, in the presence of a large gathering of interested persons, most of whom were conveyed from London by a special train. The objects of the Home may be briefly stated by saying that it is not intended for the children of the very poor, for whom provision is already made by means of existing charitable agencies, but is for the reception of children of deserving persons who are not in a position to supply to their convalescent children, entirely at their own cost, the advantage of a temporary residence at the seaside. Children, it is expected mostly from the professional class, are admitted between the age of four and twelve, irrespective of nationality and creed, and the parents are expected to pay 5s. a week towards maintenance.

The building is placed in grounds covering 10½ acres at the south side of Broadstairs, the site sloping considerably downward towards the sea. The general scheme of the design of the Home is a central administrative block, with wings for the girls and boys respectively, and accommodating fifty of each.

The lower ground-floor, facing the sea, and formed by the slope of the ground, contains the large dining-hall, 64 ft. by 27 ft., placed centrally, separate access for the boys and girls being given by means of the two staircases. On this floor are also the kitchens, servants' hall, store-rooms, &c. The boiler and heating apparatus, on the low-pressure system, are also on this floor. The ground-floor has the main entrance from the Ramsgate-road in the centre, the central block containing also the matron's room, nurses' sitting-room, committee-room and dispensary and secretary's room. The wings on either side contain on this floor large and small day-rooms, opening on to a verandah extending the whole length of the building; dormitory, with nurses' room adjoining; play corridor, 66 ft. by 10 ft., also serving as a communicating passage.

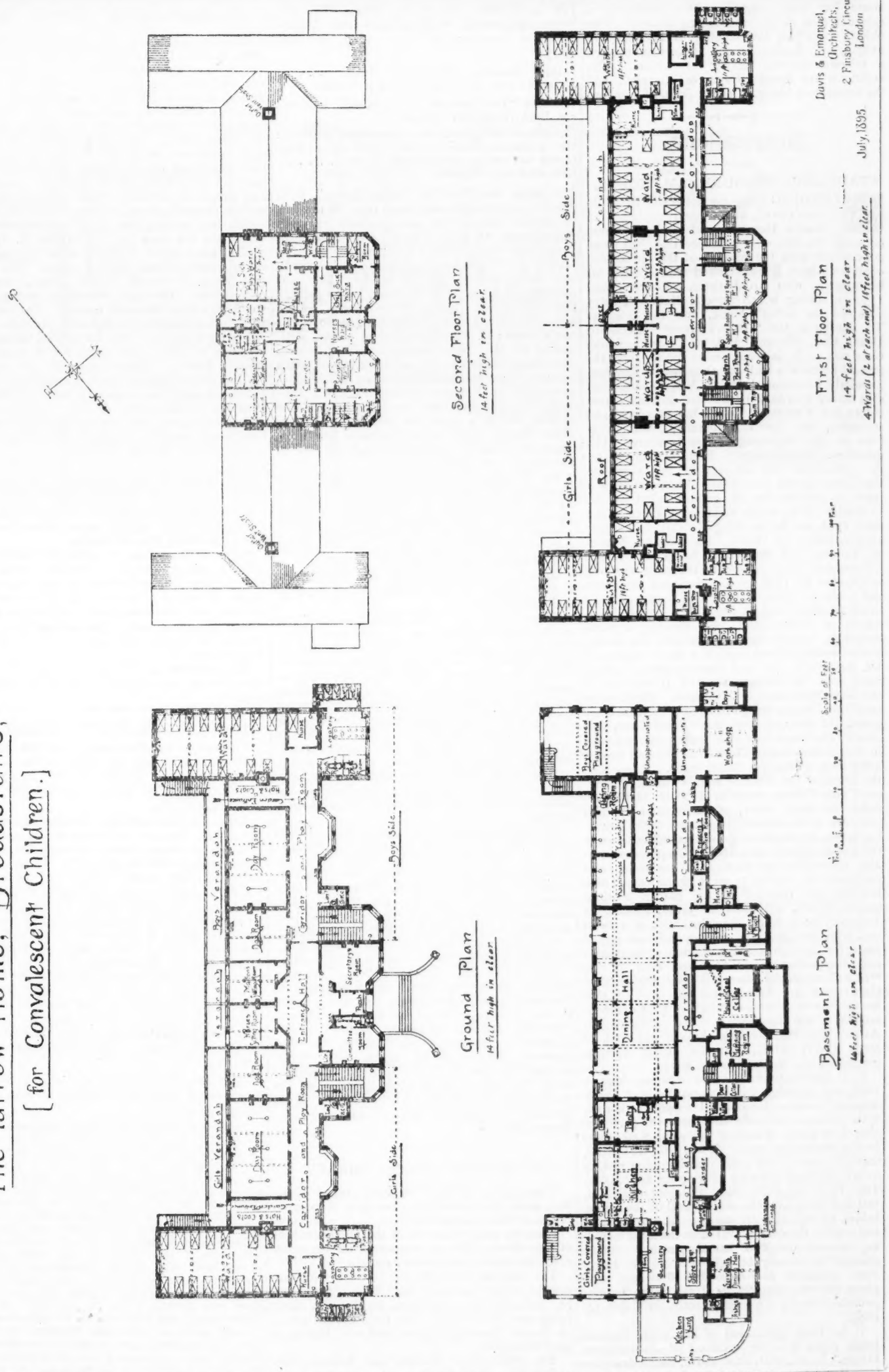
A staircase from the verandah leads to the covered playground.

The floors to dormitories are laid with pitch-pine in narrow widths.

The first-floor, reached by a boys' and girls' staircase of teak, 4 ft. 6 in. wide, contains the matron's and nurses' bedrooms in the central block, and dormitories of different capacity on either side of the central wing. Each dormitory has a nurses' room adjoining, with inspection-window for supervision. The baths and lavatories are placed in the wings at each end of the building, as also the water-closets, the latter being disconnected from the former by means of windows for cross ventilation. The floor to the lavatories is of terrazzo mosaic paving. On account of the hardness of the water in this chalk district, a "Maignen's" water-softening apparatus is fixed over each of the lavatory blocks. In addition to the hot-water apparatus, the day-rooms and dormitories are fitted with hygiastic ventilating grates and two exhaust shafts, to which the various horizontal air trunks in ceilings are connected, are

The Yarrow Home, Broadstairs,

[for Convalescent Children.]



provided, one at each end of the building, for extracting the vitiated air, the air in the several rooms being capable of being changed twice in each hour.

Externally, the building is symmetrical, as has been mentioned, the materials used being local red bricks with Ancaster-stone dressings, the steep roofs being covered with Broseley tiles, the verandah being constructed in wood. The landscape gardening has been effected largely by the employment of the excavated earth, and in forming a mound on which a look-out summer-

house has been erected, which commands a splendid view of the surrounding scenery. The objects for which the building is intended are unique, and the erection and endowment of such a scheme deserve hearty recognition. The architects are Messrs. Davis & Emanuel, and the contractors Messrs. Colls & Sons, of London.

Illustrations.

STAIRCASE, ASHBURNHAM HOUSE.

STANDING along the north side of Little Dean's-yard, and formerly styled "the Dean's House," Ashburnham House occupies the site of a residence that had been constructed with the remains of the old Misericorde for Abbot Benson (called Boston from his birthplace), who lived there, as first dean, 1539-49, during which interval Bishop Thirlby occupied the abbot's house, now the deanery. To Benson in the "Dean's House" succeeded Deans Cox, Weston, Bill, and, for a while, Goodman. It is commonly stated that the present house was built for the devoted Royalist, popularly known as "Jack" Ashburnham, head of a family who have been seated in Sussex from before the Conquest. John, his grandson and successor, first Baron Ashburnham, was living here at the beginning of last century. His grandson, John, advanced Earl of Ashburnham in 1730, sold his interest in the house to the Crown in that same year. The purchase was made to provide for the greater safety of the Cottonian MSS., which had been in Essex House since 1712, and for the King's Library, founded by Henry, Prince of Wales. Dr. Bentley, Master of Trinity, had succeeded Justel as King's Librarian in 1694. A fire in the early morning of October 23, 1731, greatly damaged the house and contents. Dr. Bentley, who happened to be there, Speaker Onslow, Dr. Robert Freind, headmaster of Westminster, and Bentley, resident custodian, exerted themselves to save the books. Freind wrote to Lord Sandon a lively picture of Dr. Bentley, in wig and dressing-gown, rushing forth with the Alexandrian MS. (Codex A), of the New Testament in his hands. Eight years later the Chapter bought, out of a Parliamentary grant, the remainder of the Crown lease, and divided the house into two prebendal residences in lieu of four houses Dean Wilcocks had cleared away from against the Abbey walls. It has been the home of Dr. Andrew Bell, Milman, Ireland, and Fynes-Clinton, compiler of "Fasti Hellenici." After the death, 1881, of Lord John Thynne, sub-dean, it was claimed, together with the adjoining house, by the school governors, under terms o the Public Schools Act, 1868. Despite considerable opposition they entered into possession, and employed Mr. Bodley to make alterations. These included the removal of the garden seat, or summer-house, attributed to Jones, against the Refectory inner wall; the substitution of a dwarf wall with iron gate and railing, and ball-capped piers, for the high screen-wall and its gate-house; and the fitting-up, in the first floor, of the "Scott" memorial library. They also erected class-rooms in place of the late Mr. Turle's house—the demolition of which in 1883 disclosed remains of the Necessarium. We published Mr. Aston's drawing, showing the original roof, of *temp.* Henry VIII., with its quaint dormers irregularly set, on October 20, 1883.

J. T. Smith's drawing of the exterior, done in 1808, and reproduced in aqua-tint for his "Westminster," shows the original hipped attic-roof, with dormers, whereof the southern part was altered in pitch by raising the south wall (1848) for the present top-story. It was then, we believe, that the dome of the great drawing-room was, so to say, flattened down for relaying the floor above. That floor has slight joists of recent deal, laid, east and west, over the central oval of the ceiling below, on each side are massive oak beams, north and south; the central oval lacks the inner moulding around the two lateral panels.* These changes are clearly brought out in Mr. Harry Sirr's measured and annotated drawings, with plans, sections, and details of the entire interior published by us, to a reduced scale, on March 14, 1885.

It has been questioned of late years whether Inigo Jones was the architect of Ashburnham House. In his print, cited above, Smith describes it as "said to be built by Inigo Jones," and there the doubt may have begun. The point has been discussed in our correspondence columns (June 25, July 2, 9, 1881; Jan. 7, 21, 1882). The late Wyatt Papworth's "Renaissance and Italian Styles of Architecture," &c., 1883, has this entry—

1640. London. Ashburnham House. . . . . I. Jones; now considered to be by J. Webb.

In the "Dictionary of Architecture" we read, *s.v.* John Webb (1611-72)—

Ashdown Park, Berkshire, is attributed to Webb: who is now considered to have carried out *cir.* 1640 (query too early) Ashburnham House, ... from the design of Jones.

Yet under the heading "Inigo Jones," it is named undoubtingly under date 1640, in the List of Works designed by and probably executed under Jones. Of Isaac Ware's "Designs of Inigo Jones and Others," Nos. 6 and 7 are the plan and section of "a staircase by Inigo Jones"—clearly that under review; No. 24 is the "plan and elevation of a seat by Inigo Jones"—the garden-seat cited above. No 23, "An Alcove," is the only plate of the fifty-three which has no architect's name; it is the dining-room alcove, delineated in Mr. Sirr's drawings. That alcove, then, may be Ware's. It is similar to one, attributed by some to him, and bearing the Shiffner coat-arms, in Lindsey House, Lincoln's Inn-fields, designed by Jones, as Mr. Alfred Marks pointed out in a letter we printed on Jan. 7, 1882. But in regard to the staircase here illustrated, we think its attribution to Jones may be considered to be established.

Mr. Wonnacott's carefully-executed perspective drawing of the staircase was made in competition for the Silver Medal for Perspective Drawing offered by the Royal Academy in 1893. As permission to measure the work was refused by the authorities of Westminster School, Mr. Wonnacott found himself much indebted to the set of measured drawings made by Mr. Harry Sirr, already referred to, and for information given by their author.

The staircase now forms a part of the buildings of Westminster School, and is easily accessible to visitors, on applying to the official at the School gate, although, as already hinted, a serious student is prevented from either sketching or measuring there. It is the principal remaining feature of old Ashburnham House; it is crowned by an oval dome supported on twelve small columns forming an arcade round the gallery of the floor over the staircase. The ceiling is richly ornamented in modelled plaster, similar in design to that of the great drawing-room (also by Inigo Jones), and the large wall panels between the pilasters are filled with tapestry of a conventional pattern.

It is not generally known that Inigo Jones was early in life apprenticed to a joiner before William, Earl of Pembroke, took the youth under his patronage, and sent him to Italy, where he continued his studies later by the favour of Thomas Howard, Earl of Arundel. One can imagine, therefore, the loving care with which he produced the design and its details here illustrated.

Several views of this fine piece of work are to be found in various books, notably in Mr. Loftie's "Inigo Jones and Christopher Wren," where a distorted photograph forms the frontispiece to the book. Two photographs are to be found in the series published by the now defunct "Society for Photographing Relics of Old London"; a small pen sketch by Mr. Herbert Railton in an article on "Westminster" in the *English Illustrated Magazine*; while Sir John Soane's large drawings of the work, prepared specially to illustrate his Royal Academy lectures, are still preserved in the Soane Museum.

* See Mr. Charles B. Scott's letter, the *Times* of Dec. 3, 1881; and the *Builder* of Jan. 14, 1882.

"NORMAN'S WOOD," SURREY.

THIS house, situated on high ground about four miles from Farnham, has just been completed for Mr. George Field.

From its position on one of the highest ridges of the Surrey hills it commands an unusually extensive view of the country round.

The materials used are red brick, in alternate courses of light and dark, with Stoke ground and St. Aldhelm stone-dressings, small green slates being used for the roof. The floors are fire-proof, on Messrs. Fawcett's system, and wire lathing is used throughout.

The ground-floor contains hall, lavatory, hats and cloaks saloon, and staircase, drawing-room, dining-room, billiard-room, library, and the usual servants' offices; above are twenty bedrooms, bath and dressing-rooms, &c. The larders and cellars are on the basement.

Mr. Percy G. Stone is the architect.

"ST. MARGARET'S," MOUNT PARK, HARROW.

THIS house has just been completed at Mount Park, Harrow, for Mr. Andrew Devitt. The house stands on a high site of an acre in extent, with beautiful views on three sides, whilst the rising ground on the fourth side is well wooded. The principal front faces south-east. This front is occupied by the dining- and morning-rooms and the entrance-hall. The drawing-room has south and north-west aspects. The house contains twelve bed and dressing rooms, and special care has been taken to make the structure economical and simple in working. The roofing is simple, with no internal gutters; and the chimney stacks, of which there are only four, are all on internal walls. The house has been built by Messrs. T. Turner & Co., Limited, of Watford, who have carried through their contract without extras. The work was placed in Messrs. Turner's hands without competition. The cost, including fencing, was well under three thousand pounds. The roofing-tiles are hand-made, the wall-tiles pressed. The red facing bricks are from Leverstock Green, the windows to hall and the porch are of Ham Hill stone. Messrs. Elsley supplied the stoves. Messrs. Hope supplied the iron casements. The baths and range were specially made by Messrs. Wontner Smith, Gray, & Co. Many of the finger plates and other ornamental metal works have been specially designed and made. The architect is Mr. Arnold Mitchell.

THE FOX ALMSHOUSES, NORTON, CO. DURHAM.

THESE almshouses are to be erected under a Charitable Trust, created under the will of the late John Henry Fox, of Norton.

Separate houses are provided for twelve old men, a porter's lodge, a common room, and clerk's office. The site is on the west side of the quaint old village of Norton. It will be seen that all living and bedrooms have a sunny aspect, and a large grass forecourt. The walls will be built of thin red bricks, and the roofs covered with Staffordshire tiles.

The architects are Messrs. Clark and Moscrop, whose design was selected in the recent competition.

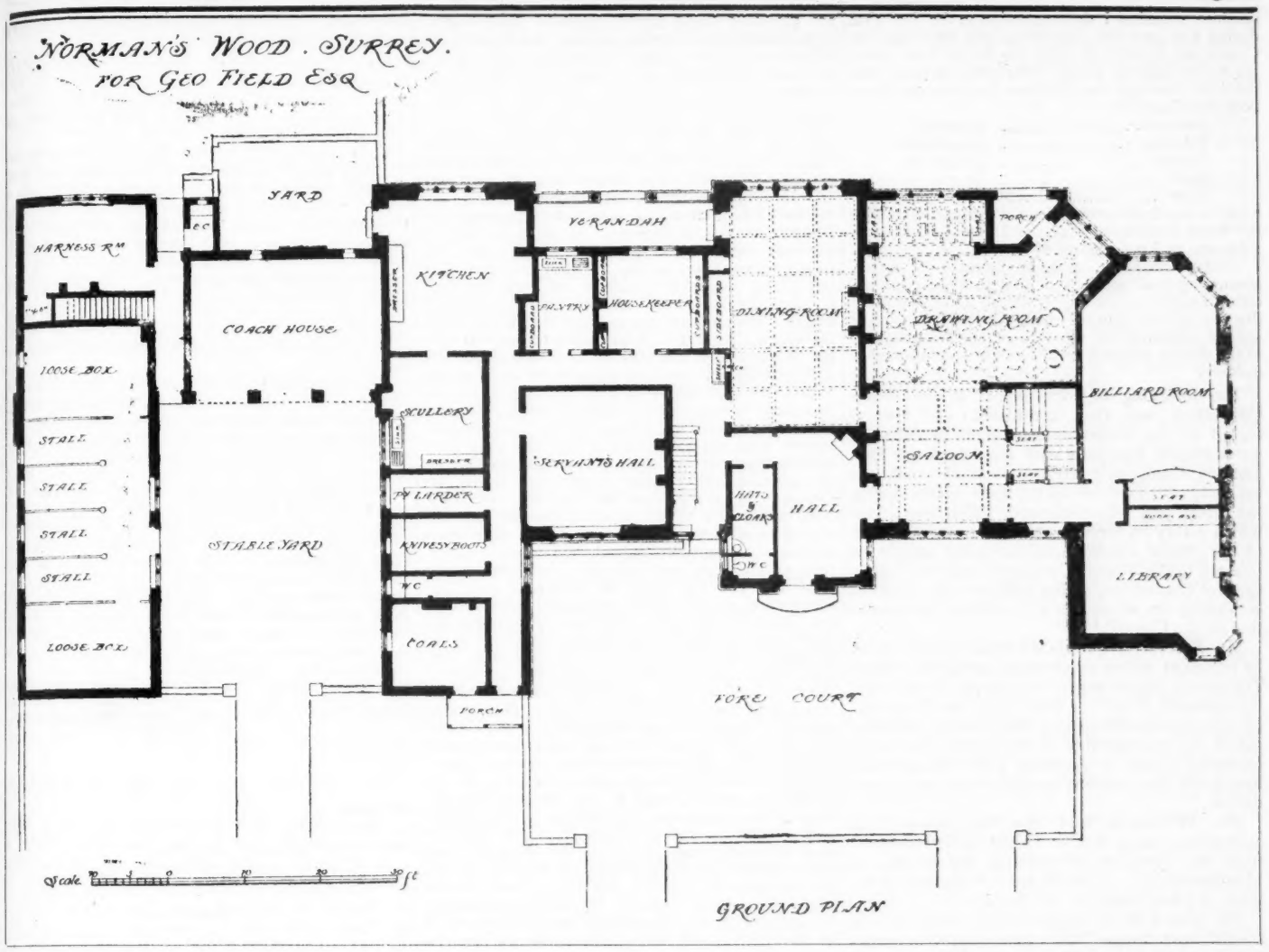
THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council, the last prior to the summer recess, was held on Tuesday, in the County Hall, Spring Gardens, Sir Arthur Arnold, Chairman, presiding.

Loans for Public Works.—On the recommendation of the Finance Committee, it was agreed to lend the Battersea Vestry 10,000*l.* for a local improvement; the Vestry of St. Luke, 2,900*l.* for sewer and other works; the Shoreditch Vestry, 10,000*l.* towards the cost of a local improvement; the Vestry of St. Pancras, 30,000*l.* for electric lighting works, and 26,100*l.* for dust destructor works in connexion; the Wandsworth Guardians, 40,000*l.* for the purchase of premises to be used as a workhouse; the St. Pancras Guardians, 9,000*l.* towards defraying the cost of erecting casual wards; the Poplar Guardians, 3,500*l.* for additions to the workhouse; the Metropolitan Asylums Board, 104,131*l.* for providing additional hospital accommodation; and the Islington Vestry, 51,000*l.* for electric lighting purposes.

The Council Employés and Extra Work.—The General Purposes Committee brought up the following report:—

"On November 20, 1894, the Council passed the following resolution, viz.:—'That, in the opinion of the Council, every officer and workman in the employment of the Council should devote his whole time to the Council's service, and should not be allowed to take any private business or paid employment, and that it be referred to the General Purposes Committee to prepare and submit a standing order to that effect.' We have carefully considered the reference to us, and have had the advantage of two interviews with representatives of the staff. On the last occasion these gentlemen put their views into the shape of a printed memorandum, copies of which we have now circulated to the Council. In this memorandum the staff asks us to recommend the Council either to rescind the resolution, so far as relates to the words 'and should not be allowed to take any private business or paid employment,' or to deal with it in such other manner as shall not prevent the exercise by the members of the staff of that reasonable liberty which they have hitherto enjoyed in the employment of their out-of-office hours. We feel it impossible to comply with the first request, as in our opinion any definite withdrawal of the words mentioned would operate as an admission that the



Council countenanced the practice of officials doing outside work. We not only believe that the Council would not wish to place itself in such a position, but we also think it essential for the staff to know that the spirit of the Council's resolution is intended to be strictly observed. At the same time we deem it inexpedient to frame any standing order which shall operate as a literal prohibition of all work done outside of office hours, as we agree that reasonable liberty may properly be allowed to the members of the staff in the employment of their leisure time. We have no reason to think that such liberty has been or will be abused, but were it taken advantage of in any particular case, the resolution of November 20 could at once be brought into operation. We therefore think that the wiser plan is for the Council to take no further action at the present moment, and we recommend – 'That the reference be discharged.'"

Mr. Boulnois, M.P., moved the following amendment:—"That the report be referred back, with an instruction to the committee to bring up a standing order in lieu of that previously directed, which will provide that members of the staff shall not, either in or out of office hours, employ their time in any occupation of a character inconsistent with their duty to the Council, or in such a manner as to detract from their capacity for the due performance of that duty." The resolution to which he objected was carried at the instigation of the trade-union representatives. If the Council were to be continually dictated to by the trade-unionists a great deal of mischief and trouble must result.

Mr. Marks, M.P., seconded the amendment, which would only put the Council's *employés* in the same position as the *employés* of private firms.

Mr. Crooks opposed the amendment, and protested against what he called the selfishness of working men, who, having regular work, were mean enough to do the unemployed out of any odd job.

Sir John Hutton then moved to proceed with the next business, and the motion having been seconded, was carried on a division by 49 to 46.

Rehousing Scheme, Somers Town.—The Public Health and Housing Committee reported progress on the Somers Town scheme, which it was proposed to carry out at a cost of 36,550*l.* The heads of the scheme were as follow:—"That Lady Henry Somerset should agree to sell to the Council her land at Churchway, Somers Town, subject to all existing leases and tenancies, at a price. That the Council should then make use of its statutory powers and clear the area of all existing occupants and interests. That the Council should, on this being done, resell to Lady Henry Somerset's trustees the cleared area at the same price at which the Council had purchased it, plus such sums as it should have expended in clearing it. That Lady Henry Somerset should agree to erect, or cause to be erected, proper and substantial dwellings on the area within a fixed period. That the Council should undertake to provide a 40-ft. road within a fixed period." After an animated discussion the report was agreed to.

Boundary-street Improvement Scheme.—The Public Health and Housing Committee recommended as follows:—

"(*a*) That, subject to estimates being submitted to the Council by the Finance Committee as required by the statute, the work of erecting the superstructures of blocks B, G, and I (sec. B), of erecting the block on part of section E, comprised in the Boundary-street improvement scheme, and of erecting the superstructure of Idenden-cottages, be executed by the Council without the intervention of a contractor, and that the plans, specifications, and estimates be referred to the Works Committee for that purpose; but that, in the event of that Committee not being satisfied of the sufficiency of the estimates, the Public Health and Housing Committee be authorised to invite tenders for the works. (*b*) That to avoid delay in proceeding with the works, standing orders No. 289 and No. 177 be in this instance suspended, and that, if tenders are invited, the Committee be authorised to open them and accept such as may be the most satisfactory. (*c*) That the solicitor be instructed, in the event of tenders being accepted, to prepare the necessary contracts, and that the Council do authorise the sealing of such contracts when prepared." The same Committee also recommended:—"That, subject to a supplementary estimate of 1,109*l.* being submitted to the Council by the Finance Committee in accordance with the statute, the foundations of the buildings to be erected on a portion of section E of the Boundary-street area be carried down to the solid ground, that an amended estimate of 28,168*l.* be referred to the Works Committee, and that Mr. Plumbe be employed as the architect of the buildings." The recommendations were agreed to.

The Water-Supply Question.—Mr. Idris, Chairman of the Water Committee, stated that no reply from the East London Water Company had yet been received in regard to the inquiries which the Council directed to be addressed to the Company. In anticipation of the Company's communication he had obtained reports from the Council's Parliamentary Agent and Engineer. The Agent (Mr. Cripps) denied most emphatically that the rejection of the East London Water Bill in 1893 was due to the opposition of the London County Council to the Company's proposed extension of their works. It was due to the arbitrary and onerous conditions which the Company sought to impose upon their customers, and which called forth opposition from all parts of the district. There was no opposition on the part of the Council to the Company making additional works.

The Clerk (Mr. De la Hooke), read the following report of the Council's Engineer, Mr. Binnie:—

"I have been endeavouring to discover, if possible, the cause of the shortness of water in the East-end, and I think that I have detected the cause. I have had tables prepared founded on the official water examiners' reports, showing the total quantities supplied by the East London Company during the years 1892, 1893, 1894, and the first five months of 1895. During 1892 the average daily supply was at the rate of 43½ million gallons, varying from about 41 million gallons in November to 46½ million gallons in January. In 1893 the average supply was at the rate of 41,900,000 gallons, varying from 37½ million gallons in October to 51,600,000 gallons in January. In 1894 the daily average was 41,400,000 gallons, varying from 37,600,000 gallons in October, when there was shortness of supply, up to, say, 44 million gallons in January. During the first five months of 1895 I find that the average supply has been at the rate of over 53 million gallons a day, varying from 45 millions in January up to 59 millions daily in February, since when they have drawn during March 54,400,000, April 55,300,000, and May 51,162,000. From this we see that the month of January in the years 1892, 1893, and 1894 was the month during which the heaviest demands were made on the company. During January, 1895, 45 million gallons were consumed, a not unprecedented amount during that month, but during the months of February, March, April, and May the quantities supplied to the district have exceeded any previous record. From our inspection of this increase my belief is that what the company are now suffering from is not an insufficiency of supply, but that their pipes became so shattered during the frost in February last, as to become so leaky that the water is wasted and does not reach the consumers. From the table attached it will be noticed that in no month during the years 1892, 1893, 1894, or 1895, have the company ever availed themselves to the full extent of their power to draw the water which they have boasted before the Royal Commissions either from the Thames or wells in the Lea valley. On a

previous occasion I drew attention to the fact that during last year the New River and East London Companies abstracted from the River Lea about 52¾ million gallons a day. During the present year the draft from that river by these two companies has been as follows:—

January	59,800,000
February	71,900,000
March	67,200,000
April	69,200,000
May	61,000,000

which is decidedly antagonistic to the reports of both the Royal Commissions of the Duke of Richmond, 1869, and of Lord Balfour of Burleigh in 1893. As I have pointed out, a large increase of water, amounting to 28 per cent. of that in 1894, or 26 per cent. in excess of the supply during the remarkably dry year of 1893, can only be accounted for by some sudden alteration in the rate of the consumption in the district supplied or by an enormous amount of leakage."

The following urgency report of the Water Committee was then considered: — "Having regard to the numerous complaints of defective water supply, especially with respect to the East London Company's area, we think that the necessity may arise for taking some action during the recess, and we recommend, 'That any action which it may be necessary to take in consequence of the present condition of the water supply be referred to the Water Committee and the Public Control Committee, sitting jointly, with power to act during the recess, notwithstanding any resolution of the Council.'"

Mr. Beachcroft questioned what powers could be exercised by the committees during the recess. The proper course would be to apply to the Local Government Board to deal with the Company. He again protested against the attempt to shuffle out of the responsibility of the Council for having expended 1,400*l.* in opposing a Bill which would have given the company ample storage accommodation.

Mr. M'Dougall said the Limehouse local authorities, being unable to get sufficient water from the Company for watering the streets, on Monday applied to the Thames Conservancy for leave to pump water out of the river.

Mr. Sidney Webb suggested that the Company should have stopped their water-supply to manufacturers, which was voluntary, in order to fulfil their statutory obligations to householders; but the Company had chosen to adopt the opposite course.

A motion to close the discussion was agreed to, and the recommendation of the Committee was adopted.

The Council then proceeded to deal with the following report of the Water Committee, the recommendation being agreed to:—

"It will be in the recollection of the members of the Council that the recent Royal Commission reported that the supply of water required for the Metropolis was likely to increase from 171 million gallons to 415¾ million gallons in 1931, thus more than doubling the present supply. The principal source from which it was suggested that this quantity should be obtained was, among others, 300 million gallons from the River Thames; but, as pointed out by the water companies, who submitted the Thames scheme to the Royal Commissioners, it was based on the assumption that the Thames could be treated similariy to the Lea, that is, that nearly all the water could without harm be abstracted from it. Further investigations which have been carried on since the date of the Royal Commission have proved that this quantity cannot, having regard to the general welfare of the Metropolis, be abstracted with safety from the river, and that the purity anticipated by the Royal Commissioners can hardly be expected to continue in the future with the present increasing population of our 1,000,000 persons in the Thames valley, as the recent investigations of the water examiner have shown that the present filter beds are unable to cope with the discoloured flood-water which comes down the Thames, which water is always charged with large amounts of bacterial life. From recent calculations which have been made on the actual flow of the river, it is found that were the scheme proposed by the water companies carried out the Thames would for several months each summer be reduced to a flow of only 200 million gallons a day at Teddington weir, and the chemist has recently pointed out in his report, which has been circulated, that whenever the flow over Teddington weir falls below 500 million gallons daily so little strength of current remains in the lower river that sea-water flows up as high as Hammersmith and Kew, and consequently the river flowing through London would soon get into a state of impurity similar to the Lea were it treated as proposed by the water companies. It is therefore important that investigations should be carried on as to the possibility of obtaining a purer and more certain source of water-supply than that afforded by the Thames, and this is the more pressing as the gathering grounds, from which alone a sufficient quantity can be obtained, are gradually being appropriated by other towns. Consequently, on February 19 last, the Council, on the report of the Water Committee, passed the following resolutions—(1.) That the Council is of opinion that the scheme for a system of storage reservoirs, presented to the Royal Commission on Water Supply by the water companies, coupled with the proposal to abstract large additional quantities of water from the rivers, is not the proper method of meeting the future wants of London. (2.) That any further capital expenditure on works in the Thames and Lea valleys for the supply of London should be regarded as of a temporary character, and should be restricted to such improvements as may be for the time indispensable. (3.) That the true solution of the problem is the obtaining of the necessary additional supplies from a purer source; and that accordingly the Water Committee be instructed to proceed with the preparation of a scheme to be presented for the consideration of the Council as soon as possible, with a view to an application to Parliament for the necessary powers. The Council is aware, from the report above referred to, as well as from previous reports, that the Engineer has for some time been investigating sources of supply outside the county of London, and under resolutions passed on October 30 and December 18 last we have been authorised to obtain assistance for the survey of reservoirs contemplated in the Engineer's scheme. These, however, although important portions of the work, are but a small fragment, as the total survey would cover for reservoirs and their allied works at least 9,000 acres, and would extend over 350 miles of conduit, and were it prepared for Parliament in such a way as to comply with the standing orders it would be one of the largest parliamentary schemes ever deposited. The urgency of the matter is emphasised by the default in supply reported in the preceding paragraph. Hitherto the engineer's report has been regarded as a confidential document, but we think the time has arrived when it should be brought to the knowledge of the Council, and we have accordingly given directions for its circulation, with a map of the locality affected. During the protracted proceedings in Parliament with respect to the Council's Transfer Bills we have refrained from moving in the matter beyond the extent already authorised by the Council, for the obvious reason that had we done so our action might have been construed by our opponents into the assumption of a threatening attitude on the part of the Council. Under these circumstances, the engineer has asked for further instructions in the matter, his own opinion being that sooner or later a supplemental scheme will have to be considered. It is hardly necessary to say that we concur in this view, inasmuch as we have already gone fully into the matter in our report presented on February 12 last, and we have therefore no hesitation in advising the Council to proceed. We do not anticipate that the Council will be in a position to go to Parliament before the session of 1897, but even then there will not be too much time at our disposal to mature the project. Of course, until the works are properly surveyed, the scheme cannot be submitted to the Council or to Parliament with that authority which such a scheme should carry with it, and we are of opinion, therefore, that measures should be at once taken on a more extended scale, to enable us to give effect to the Council's resolution quoted in this report. In anticipation of the work which would have to be done, we estimated our expenditure for the year ending March 31 next at 5,000*l.* Up to the present time the expenditure authorised will probably not exceed 2,000*l.*, or perhaps 2,500*l.* This leaves a sum of 2,500*l.* available within the limit of our estimate, and we recommend—

'That, subject to an estimate to be submitted to the Council by the Finance Committee as required by the statute, we be authorised to expend a sum not exceeding 2,500*l.* between this and March 31 next, in making further surveys and obtaining other necessary information with respect to the scheme which we have under consideration, and that under our instructions the engineer be authorised to expend any sums within the limit named which it may be necessary to expend during the ensuing recess, it being understood that, in authorising this expenditure, the Council is in no way pledged to proceed further in the matter, without further considering the whole matter.'"

Lambeth Bridge.—On the recommendation of the Bridges Committee it was agreed that Parliamentary powers should be asked for widening the eastern approach to Lambeth Bridge.

Savoy Hotel Sky-sign.—The Building Act Committee, having unsuccessfully prosecuted the Savoy Hall for an alleged "sky-sign," and the magistrate having refused to state a case, the Committee desired permission from the Council to apply to the High Court for a mandamus.

The report was adopted.

The Council adjourned soon after seven o'clock.

BUILDERS' ACCIDENT INSURANCE, LIMITED.

THE fourteenth annual general meeting of this company was held on the 26th ult., at the registered offices, 31 and 32, Bedford-street, Strand, London, W.C., Mr. Stanley G. Bird in the chair. The Secretary, Mr. R. S. Henshaw, read the following report:—

"1. In presenting their fourteenth annual report, the directors have to record a reduction in the premium income of 111*l.* 9s. 10d., and an increase of 252*l.* 8s. 11d. in the amount paid in claims, as compared with last year.

2. In explanation of the foregoing figures the directors would remind the insurers that last year they informed them that they were carrying out a very careful scrutiny of the risks, aided by Mr. George King, F.I.A., the actuary. The result of this investigation is that the directors have been obliged to refuse to renew some risks and have also increased the premium in others. Consequently the premium income shows a slight falling off.

3. During the past year the company has dealt with 588 accidents, including fifty-nine under Class 3, as compared with 602 and fifty-six respectively for the year 1893-4.

4. The increase in the amount of claims paid is due principally to two or three exceedingly heavy payments under Class 3. The claims under the ordinary risk for accidents to workpeople are considerably below those of the previous year.

5. The remuneration of the directors for their services during the past year will, as usual, be left to the members in general meeting.

6. As Employers' Liability is one of the subjects mentioned by the present Government as part of their programme, it may reasonably be expected that a Bill treating with it will be laid before Parliament very shortly. Any Bill will probably be more onerous for the employer, though it is not unlikely that some scheme may be devised for the workman making some contribution, and all cases of injury being compensated.

7. In accordance with the articles of association the following directors retire:—Messrs. William Southern, Joseph C. White, and J. Howard Colls, all of whom are eligible and offer themselves for re-election."

The Secretary also read the statement of accounts.

The retiring directors and the auditor having been re-elected, the meeting terminated with a vote of thanks to the Chairman for his services during the past year.

THE BUILDERS' BENEVOLENT INSTITUTION:

ANNUAL MEETING.

THE forty-eighth annual meeting of this charity was held on Thursday, July 25, at the offices, 35, Southampton-row, Bloomsbury. Mr. Basil P. Ellis (the President) occupied the chair, supported by Messrs. George Plucknett, J.P. (Hon. Treasurer), Thomas Stirling, W. Scrivener, E. M. W. Goslett, and other friends of the Institution.

The Secretary (Major Brutton) read the annual report, which stated that the Institution continues to carry into effect its purposes as usual, the only drawback being the need of increased income to provide for all the necessitous applicants who seek the benefits of the charity. This is especially to be regretted, because some are very aged before making their wants known. The committee's efforts have been much hampered by the diminution of subscriptions, consequent upon the death of many regular subscribers, and this makes it an earnest and urgent matter to endeavour to obtain new subscribers and donors, in order to maintain the Institution. This state of affairs cannot be too widely known to the patrons. A movement has been set on foot for the Secretary to call and solicit subscriptions or donations from all members of the building and allied trades within the metropolitan district, which it is hoped will be attended with good practical results. At the present time there are forty-six pensioners on the funds, while others are waiting for election until the income is sufficient. Four female pensioners have died within the past year; one man and one woman have been elected. The Committee strongly express their gratitude to the President, Mr. Basil P. Ellis, for the lively interest he takes in the transactions of the Institution, and for his determination to get very liberal contributions to the charity. They also offer their thanks to the Stewards of the annual dinner, and to the Honorary Auditors for their services. The Committee have further the pleasure to announce that Mr. John Mowlem Burt, J.P., D.L., has accepted the Presidentship for the ensuing year, and will preside at the annual dinner on November 7 next, in the Hall of the Worshipful Company of Carpenters, London Wall.

On the motion of Mr. Thomas Stirling, seconded by Mr. Goslett, the report and balance-sheet were unanimously adopted.

Mr. Plucknett proposed a cordial vote of thanks to the outgoing President for his exertions

in aid of the Institution during the past twelve months.

Mr. Stirling seconded the motion, which was carried by acclamation.

The President returned thanks, and said that he was pleased he had been able to do something for the charity. The success which had already attended the movement for increasing the number of subscribers was largely due to Major Brutton, who had been most assiduous in calling upon those who were likely to help.

Votes of thanks were also passed to the Vice-Presidents, and Trustees, to the Hon. Treasurer (Mr. Plucknett), who was re-elected, and to the Hon. Auditors. The retiring members of Committee were also reappointed, with the addition of Mr. Ellis.

On the motion of the President, Mr. John Mowlem Burt, J.P., D.L., was elected President for the ensuing year, and a vote of thanks to the Chairman for presiding closed the proceedings.

NATIONAL ASSOCIATION OF MASTER BUILDERS.

THE National Association of Master Builders of Great Britain held its thirty-fifth half-yearly meeting, in the Arbitration Room, Royal Exchange, Leeds, on the 23rd ult., when representatives were present from London, Liverpool, Manchester, Birmingham, Bradford, Huddersfield, Bolton, Derby, Preston, Leicester, Walsall, Hanley, Newcastle-on-Tyne, Bristol, Hull, Leeds, Southport, Nottingham, and Blackburn.

County Alderman John Bowen, J.P., Birmingham, the President, presided.

The report for the past half-year was approved and adopted, and ordered to be printed and circulated amongst the members.

Mr. C. W. Green, Liverpool, the honorary treasurer, submitted his audited accounts for the past half-year, showing the Association to be in a very satisfactory financial position.

The President explained to the meeting the course which had been adopted in reference to the Plumbers' Registration Bill, introduced into Parliament last Session, and impressed upon the members the desirability of strongly opposing the bill should it be again introduced.

A letter was read from Mr. Stanley G. Bird, London, giving an account of the result of negotiations, which had extended over a long period, with the Royal Institute of British Architects with reference to the proposed new form of contract, and expressed much regret that, owing to the course adopted by the Royal Institute of British Architects with regard to the arbitration clause in the form of contract, the whole matter had practically fallen through.

Mr. John Dawson, of Huddersfield, in expressing his view as regards the Employers' Liability Bill, strongly urged the members to insure themselves against the risk of accidents to their workmen.

Mr. T. F. Rider, London, gave a short account of the cause of the action which had been instituted by the Master Plasterers' Association of London against the National Association of Operative Plasterers, which had, for some considerable time past, systematically persecuted and endeavoured to get boycotted certain master plasterers in London with whom they may have had some slight grievance. Mr. Rider explained that this case was one in which master builders generally were concerned, and they should make a point of giving all the support they could in order to strengthen the action taken by the above body. It was decided that the Association should render all the support it could, both financially and otherwise, to the Master Plasterers' Association of London.

Various other matters interesting to the building trade were discussed, amongst which reference was made to apprentices' indenture-forms, some being drawn up in such a manner as to render the employer liable to maintain the apprentices when unable to work through illness.

Mr. Wm. Irwin, of Leeds, was unanimously elected a member of the Council to fill the vacancy occasioned by the resignation of Mr. Banks Mawson.

It was resolved to hold the next half-yearly meeting in London.

A hearty vote of thanks accorded to the President for his able services in presiding at the meeting concluded the proceedings.

In the evening the members were entertained by the Leeds Master Builders' Association at dinner in the Queen's Hotel, when Mr. William Irwin, the Vice-President of that Association, expressed in fitting remarks the pleasure it afforded the Leeds master builders to have the opportunity of receiving the representatives of such an important industry, and commented upon various matters relating to the building trade.

County Alderman John Bowen, in thanking the Leeds master builders for the enthusiastic reception accorded to the National Association, commented generally upon the objects for which the Association was formed, and called the attention of the members to the fact that defence, and not aggression, was one of the principal objects in view, and strongly urged all master builders to stand shoulder to shoulder, and be united in action, as it is only by this means the combinations of the operatives can be easily and effectually dealt with.

A vote of thanks was accorded to the Leeds Master Builders' Association for the hospitality shown by its members, and the enthusiastic reception given to the representatives upon the occasion of their visit.

Those delegates remaining in Leeds until Wednesday were conducted through the British Screw Works, Roundhay Park, and Eccup Reservoir, after which the contractor for the latter, Mr. J. Gould, provided tea for them at Eccup.

COMPETITIONS.

DURHAM COUNTY BUILDINGS.—At the last meeting of the Durham County Council the Finance Committee reported that Messrs. Cooksey & Cox, and Messrs. Barnes & Coates having delivered to the clerk satisfactory contractors' tenders to construct new county buildings, in accordance with their plans (marked "Onward" and "Demos"), for the sums named in their estimates, they recommended that those tenders be approved and the premiums paid. They also asked the authority of the Council to proceed with the new county buildings on the plans sent in under the signature of "Demos," with such alterations and modifications as they might think desirable, so that the cost should not exceed 22,000*l*. Alderman the Rev. A. D. Shafto moved the adoption of the recommendation. Councillor Bartlett opposed the adoption of the recommendation on the ground that the Committee should not have the power of dealing with this matter before the amended plans and estimates had been before the Council. If expenditure was put down at 22,000*l*., he should say that before they had finished, what with the price of land, interior fittings, &c., which were not included in that amount, the cost would have reached 40,000*l*. He contended that a much less expenditure would be sufficient, and that the Committee intended to provide something far in excess of the requirements of the Council. He moved as an amendment that this part of the Finance Committee's report be expunged. The Chairman was somewhat of the same opinion, and thought that if the Committee altered their report so that it read that the Committee be authorised to proceed with the work with such alterations as "the Council" might think desirable, instead of "the Committee might think desirable," it would meet with the Council's approval. Alderman the Rev. A. D. Shafto, the Chairman of the Committee, had no objection to the alteration, and the report was adopted subject to the proposed amendment.

IPSWICH WORKHOUSE.—Six designs of competitors for this building were remitted by the Guardians to the assessor, Mr. Charles Barry, who has awarded the first premium to Messrs. Stephen Salter, Lister Newcombe, and H. Percy Adams, of 28, Woburn-place, Russell-square, London, and the second to Messrs. Philip Tree and Ivor Price, of 70, Warwick-road, Earl's Court, London. The following architects also competed:—Mr. G. W. Leighton, Ipswich; Messrs. H. S. Legg & Son, London; Messrs. W. H. Seth-Smith & A. R. G. Fenning, London; and Messrs. C. O. Ellison & Son, Liverpool.

The Student's Column.

METALS USED IN BUILDING.—V.

THE PRINCIPAL ORES *(continued)*.

NICKEL.—This metal does not occur in the native condition; it is principally found in connexion with cobalt ores. Indeed, nickel and cobalt are so closely allied in this respect, that their separation from one another is attended with considerable difficulty. The nickel ore at Sudbury, in Canada, is intimately associated with the mineral chalcopyrite (copper pyrites; sulphide of copper and iron); the two metals being of very similar specific gravity cannot be separated by the washing process, and have, therefore, to be worked and treated together. Copper, iron, antimony, and bismuth also enter into the composition of certain nickel minerals. Pure nickel is a white, malleable, highly magnetic metal, though the last-mentioned property is not so strongly marked as in iron.

The following may be given as the principal ores of nickel:—

1. *Silicate of Nickel*, hydrated silicate of nickel and magnesium, free from sulphur and arsenic, and containing from 7 to 18 per cent. of nickel.
2. *Nickel-bearing pyrrhotine* with copper pyrites, with about 4 to 5 per cent. of nickel.
3. *Kupfernickel*, the arsenide (nickel and arsenic), in which antimony and small proportions of iron and sulphur are often present. Theoretically, it contains about 44 per cent. of nickel.
4. *Chloanthite*, the diarsenide (nickel and arsenic), with about 29 per cent. of nickel.

Until a few years ago, the ores mentioned under our third and fourth categories were the only ones exploited. The chief source of the metal at the present day is the hydrated silicate of nickel and magnesium, an ore found in considerable quantity in New Caledonia. Its method of occurrence is somewhat remarkable. The ore is always obtained at or about the junction of the rock serpentine, with a peculiar red clay, which latter sometimes has lumps of oolitic iron ore remaining in it near the surface. The clay is disposed in deep pockets of irregular character, and generally contains the hydrated oxides of cobalt and manganese, though the ore (nickel, &c.), is never found in this ferruginous clay. Another manner in which it occurs, in the same island, is as a net-work of veins in the serpentine, though these occupy the same relative position in the aggregate, with reference to the ferruginous clay alluded to.

The second ore mentioned, the nickel-bearing pyrrhotine (magnetic sulphide of iron) associated with copper pyrites, is closely related to kupfernickel, and would not be mentioned separately except for its different behaviour in certain metallurgical operations of interest to us, as will be seen hereafter.

The best-known ore is kupfernickel, which the student might imagine, at first sight, to be a compound of copper and nickel, but its name is derived from the coppery appearance of the ore when tolerably pure; though quite unconnected with this, it is sometimes found with copper ores. It is usually massive, is opaque and brittle, and turns to a metallic black on exposure for any length of time to the atmosphere. It is found in some abundance in Germany, and to a smaller extent in Austria, Spain, Norway, France, Siberia, Chili, and the United States. In this country it is known to occur in several Cornish mines, where it is generally mixed with cobalt and, rarely, with bismuth, especially at St. Austell Consols mine; also at Bathgate, in Linlithgowshire, and in Flintshire. No nickel and cobalt ore was raised in Great Britain last year; the only mine recently worked for it is in the last-mentioned county, where an instance was afforded of the occurrence of the mineral asbolan (earthy cobalt) with red clay in irregular cavities in Carboniferous Limestone.

In reference to chloanthite (the diarsenide of nickel), or white nickel, as it is sometimes termed from its tin-white appearance, this mineral passes insensibly into smaltine by the nickel being replaced by cobalt; nevertheless, it is a valuable nickel ore, found sparingly in Cornwall, near Keswick, in Cumberland, in certain parts of Scotland; but principally in Saxony, Bohemia, in silver mines in Chili, and the United States.

Cobalt.—This metal usually occurs combined with arsenic or sulphur, and is not found in the native state. The ores of cobalt, as might be anticipated from what has already been said respecting nickel, are intimately associated with that metal, and occur also with silver and copper. Cobalt is white, with a slight reddish tint, and is strongly magnetic. The blue oxide, artificially prepared, is used as a pigment in painting. The following are the principal ores of the metal:—

1.—*Smaltine*, or tin-white cobalt, arsenide of cobalt, nickel and iron, which may contain as much as 23 per cent. of cobalt.

2.—*Cobaltine*, sulphide and arsenide of cobalt.

3.—*Erythrine*, cobalt bloom, hydrous arseniate of cobalt (oxide of cobalt, arsenic acid and water), oxide of cobalt = 37·5 per cent.

4.—*Asbolan*, earthy cobalt, essentially "wad," or hydrous oxide of manganese with a variable proportion of cobalt mechanically mixed with it—sometimes as much as 40 per cent.

All these ores are used in the manufacture of smalt, the two first-mentioned being the most important. Smaltine occurs, in addition to its crystalline forms, massive, or reticulated; it tarnishes on exposure to air, and is usually found in veins associated with ores of silver, copper, &c. It is exploited both for cobalt and arsenic. Cobaltine crystallises in the cubic system, and is also found massive, granular, and compact. Earthy cobalt has been imported in large quantities into England, from the United States. The ores of cobalt occur in many Cornish localities and other parts of Great Britain, but are chiefly obtained from Sweden and Norway, Saxony, Bohemia, the United States, and New Caledonia. Dr. C. Le Neve Foster describes* the ore worked at Skutterud, in Norway, as being found in certain bands of quartz-schist and mica-schist which contain small quantities of cobalt glance, cobaltiferous mispickel, iron pyrites and other metallic sulphides. Bands of mica-schist, with but very little of the ore, alternate with quartz-schist containing the bulk of the mineral, whilst here and there the quartzose zone becomes more foliated, accompanied by the development of mica and much cobalt. He remarks that quartz-schist is the rock most likely to be cobaltiferous, the mica-schist may also be worth working, but hornblende-schist is poor. The cobaltic "beds" are commonly from two to three fathoms wide.

In New Caledonia cobalt occurs as a hydrated oxide in connexion with the ferruginous clay pockets in serpentine previously adverted to, and without a trace of sulphur or arsenic. The proportion of cobalt obtained from this source is from 2 to 3 per cent. The mineral is also found in red clay in cavities of the Carboniferous Limestone as observed when treating of nickel.

Arsenic.—This and arsenical pyrites may be summarised as follows:—In Great Britain the official returns relating to arsenic refer to arsenious acid or white oxide of arsenic (crude and refined), much of which is a by-product obtained in preparing the tin and copper ores of Cornwall and Devon for the market. The arsenical pyrites is sold to works, principally in the same counties, for the manufacture of white arsenic. In the form of arsenical pyrites this metal is the close companion of tin ore, from which it is eventually separated by calcination.

The principal kinds of arsenic are as follows:—

1.—*Native Arsenic*, which occurs in a variety of forms, granular, massive, columnar, or stalactitic.

2.—*White Arsenic*, arsenious acid.

3.—*Orpiment*, the tersulphide (arsenic and sulphur), with about 61 per cent. of arsenic.

4.—*Realgar*, the bisulphide (arsenic and sulphur), with about 70 per cent. of arsenic.

Native arsenic is tin-white in colour, but rapidly tarnishes on exposure to air. It often contains antimony and very small proportions of other metals, occurring principally associated with lead and silver ores. It is found at Dolcoath and other mines in Cornwall. White arsenic is an example in nature of what is obtained in much greater quantities artificially. It is met with as fine crystals (very minute) or encrusting some other material, and results primarily from the decomposition of arsenical ores. The white arsenic of commerce is chiefly obtained from *mispickel* (arsenical iron pyrites), which sometimes occurs alone, but is more frequently found in association with copper, tin, and gold. Orpiment, or "golden paint," crystallises in the rhombic system, has a very perfect cleavage, and usually occurs foliated or massive. Its colour is citron; the mineral is soft enough to be cut with a knife, but is not malleable. This tersulphide is made artificially, by subliming white arsenic with sulphur, in which form it is used as a paint, being known as "King's yellow." Realgar crystallises in the monoclinic system, but occurs also in a massive condition. It is much deeper in tint than orpiment, and passes through orange to bright red; as the two minerals generally occur together in Nature, this distinction of colour is useful to discriminate one from the other. It may be noted that, on exposure to the atmosphere, realgar changes to orpiment. Like the last-mentioned mineral, it is prepared artificially, to be used as a pigment. The principal localities yielding realgar are Kapnik, in Transylvania; Felsobanya, in Hungary; Hall, in the Tyrol, and it also comes from Bohemia, Kurdistan, and China.

Bismuth.—This metal occurs as a sulphide, an earthy oxide, &c., but the ore from which the bismuth of commerce is obtained (or at least the bulk of it) is *Native Bismuth*, which crystallises in the hexagonal system, though it is usually found massive or granular. Its colour is metallic white with a slight suspicion of pink; it tarnishes in the open air, and when cold is brittle. It is generally described as being sectile, but when heated is somewhat malleable. Commonly, even the pure metal contains traces of sulphur, arsenic, and tellurium. Native bismuth is found in association with the ores of lead, silver, zinc, and cobalt. In England the ores of this metal have been met with in Cornwall, at St. Just and St. Ives; also in Gwinear, Illogan, Redruth, and St. Austell. Mr. Symons, in his work on the "Geology of Cornwall," p. 191, states that bismuth occurs sporadically in small pieces in the lodes of Restormel and Fowey Consols, in some mines near Calstock, and at Ivey Tor. It is not often met with in any great quantity in the county, though a few years since the two mines Wheal Owles and East Pool, were very productive. Another British locality is Caldbeck Fells, in Cumberland. It is found in two or three districts in the United States, also in Chili, Sweden, Norway, Bohemia, Saxony, and Queensland. Bismuth is employed in several alloys, as, for example, solder.

Antimony.—This occurs in the native condition, but the principal ore from which the antimony of commerce is derived is *Stibnite* (or *Antimonite*), sometimes called antimony glance and grey antimony. It is a tersulphide (antimony and sulphur), containing about 71 per cent. of antimony; crystallises in the rhombic system, but is commonly found as masses having a columnar structure. It is lead-grey in tint, is prone to become tarnished, and the latter is sometimes iridescent. In mass it is brittle, but thin leaf-like pieces are slightly flexible, and it is one of the most readily fusible minerals in Nature. There are two important oxides of antimony—viz., antimonious oxide and antimonic oxide. Antimony usually occurs in veins, which may be merely a few inches in thickness, or may attain to as much as 6 ft., as in York County, New Brunswick. At that locality the veinstone is white quartz, calcite and iron pyrites, and the ore raised contains from 10 to 12 per cent. of stibnite. No antimony ore was produced in the United Kingdom in the year 1893 (the last available returns), though in previous years small quantities were raised from veins in Scotland and North Cornwall. It is found at several places in Hungary, also in Spain, Borneo, and the United States. Ordinary commercial antimony is very impure, containing iron, arsenic, lead, and sulphur, and is termed "regulus of antimony". Amongst other things, it is extensively employed in alloys to harden them, in which form it is often used in building.

* "Ore and Stone Mining," 1894, p. 27.

OBITUARY.

Mr. G. Knowles.—Mr. George Knowles, of Hollin Hall, Moorhead, Shipley, died there on the 26th ult., after a short illness. Mr. Knowles was formerly in business in Bradford as an architect and land agent, but retired many years ago. From 1852 to 1854 and from 1867 to 1869 he was a member of the Shipley Local Board.

GENERAL BUILDING NEWS.

Technical Institute, Norwood.—The Technical Education Board of the London County Council have taken over the Norwood Institute, Knight's Hill, S.E., and it will shortly be opened as a Technical Institute, on lines somewhat similar to the new Polytechnics in the Borough, Battersea, and elsewhere. The work of adapting the premises to the requirements of the governors has been entrusted to Mr. Leslie Waterhouse, M.A., Holborn.

Meat Market, Birmingham.—The foundation-stone of the new meat market and slaughterhouses for Birmingham were laid on the 24th ult. The architects, says the *Birmingham Gazette*, Messrs. Essex, Nicol, & Goodman, have devoted special attention to the methods of our German neighbours, and the market will be built on the combined Continental and English systems. The tender of the builder, Mr. John Bowen, was for 50,000*l.* for building alone, and with the cost of the site, fittings, and incidental expenses, the outlay is estimated to be 92,000*l.*, exclusive of the electric installation, machinery for pumping water, and refrigerating plant. The market has a frontage to Bradford-street of about 300 ft. It extends to Cheapside, where the width is exactly the same as at the front; whilst the depth between the two thoroughfares is about 320 ft. The wholesale market is on the Sherlock-street East side, and the wing to the left looking from Bradford-street is for retail dealers. On the meat market level are three retail slaughterhouses, wholesale slaughterhouses, pig lairs, triperies or offal-houses, cattle and sheep yards and gangways, and ample open space is left between each. The cattle and sheep-lairs are placed over the slaughterhouses; the entrances, one on each side from the streets adjoining, communicate direct by inclined ways from the entrance yards, and from the lairs to the pens in rear of the slaughterhouses by separate inclines. The slaughterhouse for calves and sheep is situated in the rear of that for beasts, and an arrangement is made whereby each allotment has standing room for a butcher's cart in the roadway. The yard on the retail side is upon the present solid surface, and the subway under the meat market only a few feet below. The slaughterhouses for the wholesale butchers are so constructed as to give twenty separate houses divided by iron grills. Lairage for sheep and beasts for wholesale butchers are over the slaughterhouses and partly over the block of buildings adjoining Sherlock-street on the same level, and the approach is from Sherlock-street. The slaughter halls for retail butchers are placed so as to give as much air-space and open working as possible. At the end of the meat market, adjoining Bradford-street, a small portion of the ground-floor area is occupied by the inspectors' and collectors' offices and staircases to the superintendent's office and official rooms. Outside the market adjoining those offices will be the caretaker's residence. There will be a complete over-head track from the slaughtering stalls to the market, about 2,000 yards in extent, with the necessary girders, brackets, and hangers, and fifty travelling jennies and hanging bars. Thirty-two cells have been built for washing entrails, eighty-four for the storage of meat, and there are a large number of departments set apart for the various articles required for slaughtering purposes, and in the transaction of the business of the market.

Technical Schools, Richmond.—On the 24th ult. the foundation-stone of the New Secondary School in Kew-road, Richmond, was laid. The building has as its object the provision of efficient modern education in science, art, and manual work during the day for 350 or 400 scholars, and to serve the purposes of a polytechnic, including women's classes, in the evenings. It will cost, when completed, 6,467*l.* The portion now being erected will cost 4,626*l.* Messrs. Fryer & Bath, of Westminster, are the architects. A description of the building appeared in our issue for June 15 last.

New Offices, Austin Friars.—The freehold property comprising Nos. 10, 11, and 6½, Austin Friars, E.C., and covering an area of 5,000 ft. super., has been purchased by the Johannesburg Consolidated Investment Company. Mr. T. H. Smith, of Basinghall-street, has been instructed by the directors to prepare plans for the new buildings to be erected on the site for their occupation.

Public Library, Thornliebank, Renfrewshire.—The memorial-stone of the public library which is being erected at Thornliebank to commemorate the late Mr. Alexander Crum was laid on the 27th ult. The reading-room of the library is 24 ft. by 48 ft., and is lighted on all sides by large windows, high enough to admit of a range of book-cases to accommodate 5,000 volumes being placed against the walls. Situated at the back is a book-store, which is capable of holding 3,500 volumes. Adjoining the book-store is a committee-room. The building, which was designed by Dr. Rowand Anderson, Edinburgh, is in the Classic style.

Baptist Chapel, Horfield, Gloucestershire.—On the 24th ult. a new Baptist chapel, situated in Brynland-avenue, Horfield, was opened. The buildings include a school chapel, to seat 500 persons, class-rooms, vestry, and offices. The erection is of blue pennant-stone, with freestone dressing. The cost of all the buildings will be about 6,000*l.* The architect was Mr. H. J. Jones, of Bristol, and the contractors for the work at present in hand are Messrs. R. Wilkins & Sons.

Church, Nottingham.—The Duke of Newcastle on the 23rd ult. laid the foundation-stone of St. Catherine's Church, St. Ann's Well-road, Nottingham. The new church, which is being built to supersede the present iron structure, is to consist of a nave, of four bays in length, with north and south side aisles, a lofty chancel with morning chapel on the south side, an organ chamber, and clergy and choir vestries. The nave is to have a clerestory of more than usual height, with two two-light traceried windows to each bay. The west end has a wide doorway, with three two-light traceried windows over, and a St. Catharine wheel window in the gable. The church will be built of Bulwell stone, with Bath-stone dressings; the roofs are opened timbered, with arched principals, supported on shafts with moulded caps and bases, and provision is made for two bells to be hung at the west end. When completed the building will seat about 600 persons. The builder is Mr. Wm. Smith, of Newark, and the work is being carried out under the superintendence of the architect, Mr. R. E. Clarke. The estimated cost of the building is 6,000*l.*

Hall, Cwmbwrla, Glamorganshire.—This building was opened on the 27th ult. In the basement is a club-room, 35 ft. by 35 ft., with committee-room and library adjoining. There are also a kitchen and the usual offices. On the ground floor, which is level with the road, is the public hall, capable of seating between 400 and 500 persons, with a platform, and the staircase leading down to retiring-rooms in basement at one end. The hall is entered from the road by a large vestibule. The floor to the hall is of fireproof construction. The

elevation to the road is built in red brick, with Bath stone dressings. The gables are filled in with timber work, with white plaster between. The whole of the work has been carried out by Messrs. Weaver Brothers, Manselton, Swansea, from the designs prepared by Messrs. Wilson & Moxham, architects, Swansea.

EDINBURGH BRANCH PUBLIC LIBRARIES.—The plans for the first of the Thomas Nelson Hall and Branch Public Libraries are now before the Dean of Guild Court. The site chosen is at the corner of Dundee-street and Murdoch-terrace, immediately opposite the new subway to Dalry. The plans show a building with frontage to Dundee-street of two stories, and one story to Murdoch-terrace. There is a large vestibule and entrance-hall, on the right of which is the Nelson Hall, 75 ft. long by 33 ft. 6 in. wide. In the centre is the lending library, with open counter to the inner entrance-hall for general borrowers, and on the left the reading-room, 75 ft. long by 18 ft. wide, with boys' room behind. The Nelson Hall will be fitted up as a news and recreation room, and will be provided with newspapers and games. It will be separated from the library by a glass partition in five arches. The library will contain accommodation for from 11,000 to 12,000 volumes, with ample light from the roof, and divided from the reading-room by a counter with a row of double columns and arches. The upper floor contains staff and committee rooms, stores, and caretaker's house. All the halls have open-timbered roofs, and the lighting is principally from large roof-lights. The architect is Mr. Harry Ramsay Taylor.

CHAPEL VESTRY, HORSFORTH, YORKSHIRE.—The foundation-stone of a new vestry for the New Connexion Chapel in Bachelor-lane, Horsforth, was laid recently. In addition to this new vestry, there are to be structural alterations in other parts of the chapel, plans for which have been drawn by Mr. Wm. Walker.

BUSINESS PREMISES, BIRMINGHAM.—It is proposed to erect on a piece of land situated in Corporation-street, Birmingham, having an area of 800 square yards, a frontage of 45 ft., and a depth of 160 ft., a large furniture factory and a show-room. The plans for the building are being prepared by Messrs. Crouch & Butler, Birmingham. The cost of building will be about 10,000*l.* A contract has been given to Messrs. Smith & Sons, Birmingham, for the alteration of part of Mr. Dean's present premises in Corporation-street.

CHOIR-STALLS, &C., WESTON FAVEL CHURCH, NORTHAMPTONSHIRE.—The Bishop of the diocese recently dedicated the new choir-stalls and altar-desk at St. Peter's Church, Weston Favel. The new choir-stalls and the prayer-desks are of oak, foreign wainscot being used for the more delicate portion, and English oak for the bases, floors, &c. The men's book-fronts and the front of the prayer-desks are all of open tracery work, and the end uprights have carved poppy-heads, different in treatment. They have been made by Mr. John Westley, builder, a resident of Weston Favel, the carving been executed by Mr. Samuel Reynolds, of Northampton, and the whole being from designs by Mr. M. H. Holding, of Northampton, the architect of the church restoration.

CHURCH, TREHARRIS, GLAMORGANSHIRE.—On the 29th ult. the foundation-stone of a new church—to be called St. Matthias—in Cardiff-road, Treharris, was laid. The new church, which will provide accommodation for 365 worshippers, will cost about 3,000*l.* It is to be built of native stone with Bath stone-dressings. Mr. J. L. Pearson, R.A., is the architect, and the contractors are Messrs. William Cowlin & Son, of Bristol. The clerk of the works is Mr. H. Cane. There will be a nave, a north aisle, a chancel, an organ-chamber, and two vestries, with an ornamental bell-turret at the western end.

PROPOSED EXTENSION OF HARBORNE PARISH CHURCH.—It is proposed to enlarge this church, and the plans drawn up by Mr. Ralph Heaton provide for an extension of the chancel 14 ft. or 15 ft. eastward, and the extension of the outer walls 10 ft. or 11 ft. The choir will thus be accommodated in the chancel, and the space in the nave will be increased so as to permit of seating accommodation for 852 persons in that portion of the church. The galleries are, according to the plans, to be dispensed with. The estimated cost of the scheme was stated to be 4,000*l.*, or, if only the extension of the chancel be entertained, 1,250*l.*

COFFEE TAVERN, BURNHAM, SOMERSET.—The contract has been let for the erection of a coffee tavern at Burnham, Somerset, for Mr. J. B. Braithwaite, jun., on the site of the "Mason's Arms Hotel." The premises will comprise a large coffee bar, bar parlour, manager's residence, accommodation for daily visitors, cyclists, football teams, &c., also a suite of rooms for the Local Liberal Association. Messrs. Clark & Moscrop, of Darlington, are the architects, and Mr. James Keats, of Burnham, the contractor, who will carry out the work under the local superintendance of Mr. C. S. Leech, architect, of Burnham and Highbridge. The walling will be built of bricks made by the Apex Tile Company, with Corsham-stone dressings, and the roof of Staffordshire Broseley tiles.

NEW BUILDINGS, ST. EDMUND'S COLLEGE, HERTFORD.—On the 23rd ult. the foundation-stone was laid of the new buildings that the authorities wish to add to the St. Edmund's College. When complete the new buildings will include an exhibition-hall, which will be used during the year for one of the studies, ten class-rooms, lavatories, swimming-bath, covered playground, two dormitories, a library for the boys, and a billiard-room for the professors. The architect is Mr. A. E. Purdie. It is not intended to carry out at once the whole scheme. The part to be immediately proceeded with, of which the estimated cost is 4,500*l.*, will comprise the swimming-bath, lavatories, a dormitory to hold forty boys, and, if funds permit, additional class-rooms and a boy's library.

SCHOOLS, TENBURY, WORCESTER.—The Bishop of Hereford visited Lindridge, near Tenbury, a short time since, for the purpose of opening the new church schools. Messrs. Hewitt & Sons, Tenbury, were the builders, Mr. J. T. Meredith, of Kidderminster, being the architect. It is built of red brick and white brick facings, and stone coping surmounted by a tiled roof. It comprises a mixed schoolroom and class-room, which can be divided into two or thrown into one by means of folding partitions, and an infant school. The whole school is capable of holding about 150. It is heated throughout with hot-water pipes. A clock spire forms part of the scheme.——After leaving Lindridge, the Bishop of Hereford visited Tenbury, where he laid the foundation-stone of the new infant school. Its construction is in the hands of Messrs. H. Hewitt & Sons, builders, Tenbury, the architect being Mr. J. T. Meredith, Kidderminster. The school will accommodate about 150, the size of the principal schoolroom being 33 ft. by 21 ft., and 17 ft. high, while that of the babies' room will be 21 ft. by 18 ft.

CONVALESCENT HOME, LLANFAIRFECHAN, NORTH WALES.—A convalescent home is shortly to be erected at Llanfairfechan, North Wales. The building will contain fifty beds. Messrs. Bower & Hall, of Nantwich, are the architects, and the contract has been let to Mr. J. Gallimore, of Newcastle. The building will be erected of blue Penmaenmawr stone, with freestone dressings. On one side the sloping ground gives the building a basement floor. The building will be 130 ft. long, with a depth of 45 ft. The basement will contain dining-hall, coming out level with the garden, kitchen, bagatelle-room, scullery, and domestic offices. The ground floor comprises sitting-rooms, library, surgery, and matron's room. The upper floors will be occupied as dormitories and servants' quarters. Laundry and stables will be attached.

ALTERATIONS TO MUSIC HALL, BRISTOL.—After underg ing extensive alterations and redecoration, the old Star Music-hall in Broadmead, Bristol, was reopened on the 29th ult., as the New Tivoli. Mr. Hancock was the architect engaged,

BOARD SCHOOLS, FARNHAM.—The new Bourne Schools have recently been opened, Mr. Paxton Watson was the architect of the school; Messrs. Bottrill & Son, of Reading, being the builders.

SANITARY AND ENGINEERING NEWS.

PENZANCE SEA-WALL.—A special meeting of the Penzance Town Council was held in the Council Chamber on the 15th ult., for the purpose of opening the tenders for the new sea-wall on the Western Promenade. The Mayor read the tenders as follows:—John Shaddock, Mutley, Plymouth, 13,500*l.*; Shillabear, Plymouth, 10,200*l.*; Messrs. J. C. & T. A. Lang, Liskeard, 10,600*l.*; Arthur Carkeek, Redruth, 9,866*l.*; W. H. Stevens, Penzance, 11,075*l.* (subject to a clause that the conditions in the contract deed shall meet with the contractor's approval). The Surveyor's estimate was 10,830*l.*, including cost of the inquiry and the railings. Mr. A. Carkeek's tender was accepted.

WATER-SUPPLY, NORTH WALSHAM, NORFOLK.—Mr. J. C. Mellis, C.E., has been instructed by the North Walsham District Council to examine and report in reference to a water-supply for their district.

MISCELLANEOUS.

A NEW BUILDERS' LEVEL.—Messrs. Ryan Bros., builders, of Clapham Junction, send us the specification of a simple improvement in a builder's square, whereby it can be used to give perpendiculars or raking bevels. A spirit level is attached to the short arm of the square, and on the long arm is fixed an extra or double arm, hinged on a pivot at the top, and with a metal quadrant at the foot, formed to the arc of the circle through which the movable arm passes, and capable of being clamped at any desired point by a screw. Thus, if the object is to keep the true line of batter in a wall or a mansard roof, or any other surface, the movable arm can be clamped to that angle and the level on the horizontal arm will give the right angle of the movable clamped arm on the upright portion.

ART SCHOLARSHIPS AND EXHIBITIONS.—In the official circular for July of the *London Technical Education Gazette*, it is stated that last year the Technical Education Board offered twenty Schools of Art Scholarships, twenty Artisan Art Scholarships, and 100 Evening Art Exhibitions, but as there was not a sufficiently strong competition, the Board did not award the full number. This year there has been a much keener competition, and a new feature has been introduced by the decision to award a certain proportion of the scholarships and exhibitions, not exceeding one-half, on the merits of works submitted by the candidates, apart from the results of examination. The result has been a marked improvement in the competitions. There is evidence to show that the opportunity afforded to candidates of submitting works of their own for competition has produced a marked improvement in the work done in the schools. The following report by Messrs. Frampton and Lethaby, the Board's Art Inspectors, is also given in the official circular:—"We have seen much of the work done in examination last year, and this year's work shows a marked all-round improvement; 526 competed as against 244 last year. The work done at the examinations is much fresher, showing more self-reliance on the part of the students in getting away from stereotyped methods of drawing and design, and thinking for themselves. It is this personal touch, this observation at first hand, that has been one of the chief guides to us in marking the papers we have examined. Under the class of works submitted, the results have been even more satisfactory than in the set examinations, and most excellent work has been submitted where design and workmanship have been brought together by one worker—in many cases an apprentice or journeyman. The list of occupations of the students recommended for scholarships on the merits of works submitted shows that this is by far the best way not only of obtaining the most real and interesting work, but of reaching those actually engaged in the crafts. For instance, there were original book-bindings by a bookbinder, metal-work by metal-workers and jewellers, the work of stone and wood carvers, of a die-sinker, engraver, and lithographer, and embroidery by a dressmaker, &c., &c. One of the most interesting contributions has been the embroidery sent from Battersea Polytechnic, where an attempt has been successfully made to bring design and work together in the embroidery class. At this school design is not so much *taught* by the masters as a set of rules, but is drawn out by suggestions. We shall hope to see work from Battersea equally successful in other departments, such as wood-carving. In the class of preparatory studies much good work was also submitted, showing that the students had been induced to make careful studies outside the bounds of mere school work."

SHOREDITCH MUNICIPAL TECHNICAL SCHOOL.—The following list has been sent to us of candidates who have passed examinations and competitions, all being pupils of the above-named school:—London County Council Artisans Scholarship (value 20*l.* a year)—S. H. Stilwell, marquetry cutter; A. Gardner, chair carver: London County Council Evening Art Scholarship (value 5*l.* a year)—F. Tod, woodcarver: The Worshipful Company of Carpenters' Examination in Carpentry and Joinery—Student S. Switzer entered and gained First Class Certificate and Bronze Medal: City and Guilds of London Institute Examinations in Cabinet-making—ten entered, eight passed; 1st Class, F. Bransgrove, C. H. Dickin, S. Barron, F. W. Ockelford, G. H. Godden; 2nd Class, A. J. Jackman, W. S. Woodhouse, F. P. Hamilton: Theoretical Plumbing—ten entered, five passed; 1st Class, F. C. Painter, J. E. Higgs, A. Shephard; 2nd Class, J. E. Abbott, J. A. Clark: Practical Plumbing—F. C. Painter, J. E. Higgs, F. W. Mudd: Electrical Fitting—four entered, two passed; S. Pauls, F. J. Benkert: Elementary Teachers' Manual Training (Woodwork)—first year; twelve entered, twelve passed; 1st Class, A. G. Letch, S. A. Switzer, W. S. Pincott, J. Benson, F. R. Frost, S. T. Bryant, W. Murray, H. H. Harrap, A. J. White, E. W. Switzer, F. S. Wheeler, T. K. Warry: Final Examination (Woodwork)—six entered, six passed; 1st Class, J. J. Boyle, T. Graves, N. C. Hambrook, H. Price, W. T. Stokes; 2nd Class, B. H. Emerson.

CITY AND GUILDS OF LONDON INSTITUTE.—The diploma of "Associate of the City and Guilds of London Institute" has been conferred by the Council of the Institute upon the following matriculated students who have this year successfully completed the full course of instruction at the Central Technical College. In Civil and Mechanical Engineering:—H. S. Andrewes; F. G. Arnould; J. E. Chapman; H. E. Fenwick; C. S. Hainworth; E. W. Hainworth; B. H. M. Hewett; E. W. Hummel; F. T. W. Lewis; F. E. Morgan; R. E. Reeves; H. Robinson. In Applied Physics and Electrical Engineering:—J. M. Barr; S. Beeton; C. Brandeis; W. M. Carver; A. D. Constable; S. Gilford; F. S. Crogan; A. C. Hanson; G. S. Hewett; C. D. Le Maistre; P. G. Phelps; W. Reilly; W. Roberts; H. G. Solomon; R. J. J. Swann; C. P. Taylor; E. L. Thorp; E. L. Webb; N. J. Wilson.

OFFENSIVE SMELLS.—In his monthly report on the sanitary condition of Kensington, Dr. Orme Dudfield, the Medical Officer of Health, says that: "The long-continued dry weather, combined with the heat, accounts for the numerous complaints recently received of offensive smells from street gulleys and wood-paved roads. This matter has been considered by the Sanitary Committee, whose recommendation that the Wharves and Plant Committee be requested to instruct the Surveyor to take all necessary steps for a more frequent cleansing of the gulleys and the wood-paved roads, was adopted by your Vestry. Pungent as may be the odour

arising from the roads paved with creasoted wood blocks, there can be no doubt that it is less objectionable than the smells arising from roads paved with non-creasoted wood blocks, which are harmless. The nuisance from practically untrapped gulleys (and these, I fear, are a majority in this parish), is more dangerous and ought not to be tolerated. Nor would it exist if Sanitary Authorities complied with the requirements of Section 71 of the Metropolis Management Act, 1885, which reads as follows:—'Every District Board and Vestry shall, by providing proper traps or other coverings, or by ventilation, or by such other ways and means as shall be practicable for that purpose, prevent the effluvia of sewers from exhaling through gulley-holes, gratings, and other openings of sewers in any of the streets or other places within their district or parish.'"

NEW R.A. ELECTIONS.—Mr. E. Onslow Ford, A.R.A., and Mr. W. B. Richmond, A.R.A., were elected Royal Academicians on the 26th ult.

CHURCHYARD BOTTOM WOOD, HIGHGATE.—The agitation in favour of the acquisition of Churchyard Bottom Wood, Highgate, has resulted in the Ecclesiastical Commissioners, who own it, making a considerable concession. They will sell the wood (sixty-five acres) to the District Council for 25,000*l.*, and waive their right to cut two roads through it. By this the rural character of the wood is preserved, and the Charity Commissioners, who are going to complete their scheme by selling the front for building purposes, will gain another 50 ft. frontage, and enable two more houses to be erected upon the land, and thus another 20*l.* a year will be added to the prospective income of the charities.—*Daily Chronicle.*

LITHOGRAPHIC EXHIBITION IN PARIS.—A centenary exhibition of lithography is to be held in September and October next in the Palais des Beaux Arts, on the Champ de Mars.

MIDDLESBROUGH BUILDERS AND THE CORPORATION.—At a meeting of the Middlesbrough Streets Committee, held on the 26th ult., Alderman Bulmer presiding—four builders, Messrs. H. Dean, Wilkinson, Lister, and Ward, were asked to explain why they had deviated from the plans previously passed by the committee by adding attics. They admitted that they had made the alteration without the sanction of the committee, but said they thought they were improving the property. The Chairman informed them that the Corporation must not be set at defiance, and no building must be erected except in accordance with the plans as passed by the committee. After some discussion, it was decided to pass the amended plans where the attics were marked as boxrooms, and reject those marked as bedrooms.

A CHATEAU BURNED.—A serious fire has nearly destroyed the Château of Roverdi, near Roubaix, in France, which contained a splendid collection of pictures, valued at 500,000 francs, including some works by Vandyck and Rubens.

REPAIRS TO HAMPTON COURT PALACE.—During the past few days several men have been engaged in repairing the stonework of the Great Hall, Hampton Court Palace, which had become somewhat dilapidated in parts.

NEW ROPE RAILWAY IN PARIS.—The preliminary work is to be commenced shortly for a rope traction railway with a double line of rails, from the Boulevard des Filles du Calvaire, near the Cirque d'Hiver, to the highest part of Menilmontant, near the Rue des Pyrenées.

THE STATE OF THE NEW YORK CUSTOM-HOUSE.—Attention has been called by the health authorities to the unsanitary condition of the Custom-House in New York. The report of Sanitary Inspector Sullivan shows it to be in a most deplorable condition, endangering greatly the life and health of the *employés* in this department. The report was submitted to Collector Kilbreth, who forwarded it to the Treasury Department, but states that he has received no communication regarding it as yet. According to the report of Inspector Sullivan, the drain-pipes in the Custom-House are connected in such a way with the pipes which supply drinking-water that there is danger of the latter being contaminated. Contamination superadded to the sufficiency already in Croton water would seem to promise the Health Department good reason for summary interference in the near future. The details of Inspector Sullivan's report make a chronicle too loathsome to publish.—*Architecture and Building.*

NEW RAILWAYS IN FRANCE.—Two new lines of railway are to be commenced shortly, one from St. Quentin to Catelet, the other from Bordeaux to the Spanish frontier. A branch line from the last-named will be made from Bayonne to St. Jean Pied-de-Port, with a coast-station at Bayonne.

THE WATER SUPPLY OF CALCUTTA.—The *Indian Engineer* (a paper which, we are glad to see, has considerably extended its size and scope as compared with its earlier numbers) states that, "With all the regard that is had to the filtering and otherwise purifying of the Calcutta water-supply, the inhabitants of that delectable city are frequently rendered nervous, or nerveless, by such things as hairy (!) snakes emanating with the so-called *aquavura* from the taps or the street hydrants; but it has been reserved for Messrs. Smith, Stanistreet, & Co., a well-known firm of chemists in Calcutta, to prove that the water is anything but pure; they have lately fitted up a large installation of the 'Berkefeld' filters for use in the manufacture of their aërated waters, and the amount of impurity extracted by it daily from their water-supply is said to be astonishing. So that Calcutta is losing its reputation more rapidly than ever." It is, perhaps, not insignificant that we read in another column of the same journal that, while Calcutta has been passing through an unusually unhealthy season, rural Bengal has shown better health statistics than usual. Something is evidently wrong in Calcutta.

BRITISH MEDICAL ASSOCIATION ANNUAL MEETING.—In connexion with the British Medical Association's annual meeting, which is being held this week, a series of receptions have been given at the Parkes Museum by the President and Council of the Sanitary Institute, and on Wednesday Dr. Wynter Blyth delivered a lecture on "The Teaching of Hygiene as illustrated by the Parkes Museum." A short repprt of the lecture will appear in our next issue, as well as a brief report of subsequent proceedings.

ELECTRIC LIGHT FOR HACKNEY.—The Hackney Vestry have decided to introduce into their district the electric light in conjunction with a dust-destructor. The scheme has been entrusted to Mr. Francis Hastings Medhurst, the consulting electrical engineer to the Vestry.

LEGAL.

PARTY WALLS AND THE LONDON BUILDING ACT, 1894.

IMPORTANT CASE IN THE COURT OF APPEAL.

THE case of Crow *v.* Redhouse came before the Court of Appeal composed of the Master of the Rolls and Lords Justices Kay and A. L. Smith, on Monday and Tuesday last, it being the appeal of Mr. Arthur Crow, District Surveyor of the Whitechapel-Spitalfields District, against the decision of a Divisional Court of Queen's Bench, consisting of Mr. Justice Wills and Mr. Justice Wright, on a special case stated by Mr. Dickinson, a metropolitan magistrate on an appeal by Mr. Samuel Redhouse, under Section 150 of the London Building Act, 1894, against a decision by Mr. Crow. The case was fully reported in the *Builder* for July 13, last.

The facts of the case are shortly these:—Mr. Redhouse proposed to rebuild a six-story warehouse, No. 3, Church-street, which in consequence of a fire and subsequent proceedings was taken down as dangerous in November, 1894, for more than one-half of its cubical extent, so that the proposed rebuilding would be a "new building" within Section 5 (6) of the London Building Act, 1894, which defines new building as "any building which has been taken down for more than one-half of its cubical extent, and re-erected, or commenced to be re-erected, wholly or partially, on the same site after the commencement of this Act." The District Surveyor served a notice of objection on Redhouse, but the matters in the notice were remedied, with the exception of the objections made to the use, without thickening, of a wall, forming the west boundary of the site, as the party-wall between the reinstated building, No. 3, Church-street, and the adjoining warehouse, No. 1, Church-street, the said wall not being in conformity with the provisions of the Act as to new party-walls. Before the fire took place the party-wall had been the party-wall between No. 1 and No. 3. So far as the party-wall concerned No. 1, which had not been seriously injured by the fire, it had been reinstated in the course of the reinstatement of No. 1. These reinstatements had not amounted to the erection of a "new building" at No. 1. Redhouse appealed to the magistrate on the ground that he was not compelled by law, to make the party-wall conform to the provisions of the Act of 1894. The extent to which the party-wall had been burnt and taken down in consequence of the fire amounted to only one-third of its superficial area, and the remainder was safe. The party-wall had been erected in conformity with the previous Building Acts, but was not of the thickness required by the Act of 1894. Redhouse's contention to the Magistrate was that, as the party-wall had not been taken down, burnt, or destroyed, to the extent of one-half thereof, by virtue of Section 208 of the London Building Act, 1894, the proposed use by him of the party-wall was not in contravention of the Act. The Section in question enacts that, "Unless in any case the Council otherwise allow, when a party-wall or external wall not in conformity with this Act has been taken down, burnt or destroyed, to the extent of one-half thereof (measured in superficial feet), every remaining portion of the old wall not in conformity with this Act shall either be made to conform therewith or be taken down before the rebuilding thereof." The surveyor, Mr. Crow, contended that the proposed re-erection, being a "new building" within Section 5 (6) of the Act, the party-wall should be so erected as to comply with the provisions of the said Act, and that there was no exemption enacted or implied in Section 208. The magistrate decided in favour of Redhouse, and held that he could not be compelled to take down, rebuild, or thicken the said party-wall, and the Divisional Court upheld his decision, Mr. Justice Wright, the junior Judge, dissenting, and withdrawing his judgment.

Mr. Crow now appealed.

After hearing the arguments of counsel, their Lordships dismissed the appeal with costs.

A SANITARY PROSECUTION.

GAMMELL *v.* J. TAYLOR.

AT the Handsworth Police-court, on the 26th ult., John Taylor, Heathfield-road, was summoned at the instance of Mr. Gammell, Inspector of Nuisances to the Urban District of Perry Barr, for neglecting to comply with an order made on June 14, requiring him, within seven days, to cleanse and properly remove the contents of a dumb well on the premises in Chester-road, Oscott.

Mr. Henry Ward, Clerk to the Perry Barr District Council, informed the Bench that the defendant had made an attempt to cleanse the well, which was 80 ft. deep, but as the work was being carried out in such a way as to prove dangerous to health, he stopped the contractor from proceeding with it.

Mr. Hassall, for the defendant, said his client had done his best to comply with the order. No intimation was given to the defendant from the day the work was stopped until the second summons was issued that the former order had not been complied with.—The case was adjourned for a fortnight to enable the defendant to cleanse the well and remove the refuse properly.

WRIGHT & CO. *v* HENNESSEY.

IN the Queen's Bench Division, on the 26th ult., before Mr. Baron Pollock and a special jury, the case of Wright & Co. *v.* Hennessey was tried. It was an action (we quote from the *Times* report) brought by Messrs. Samuel Wright & Co., of the Crown Works, Amhurst-road, Hackney, fibrous plaster manufacturers, against Mr. Daniel Hennessey, of Club Union-buildings, Clerkenwell-road, the organising secretary of the National Association of Operative Plasterers, for (1) damages for maliciously inducing and endeavouring to induce persons to break contracts with the plaintiffs, and for libel; (2) an injunction restraining the defendant from inducing or endeavouring to induce Messrs. Colls & Sons to break a contract made by them with the plaintiffs in respect of work at the Pavilion Theatre, Whitechapel; (3) an injunction restraining the defendant from continuing to write or publish the libels complained of.

Mr. Lawson Walton, Q.C., Mr. T. W. Chitty, and Mr. Frank Newbolt appeared for the plaintiffs; Mr. Robson, Q.C., and Mr. A. H. Ruegg, Q.C., for the defendant.

Mr. Lawson Walton, Q.C., in opening the case, said that the defendant had attempted to ruin the plaintiffs by malignant libels and interference with the plaintiffs' contracts. The action was brought by the plaintiffs, not as an attack on trade unionism, but in self-defence. Mr. Samuel Wright, a member of the plaintiff firm, formed a combination of master plasterers. Mr. Peek, a master plasterer, had a difference with the defendant, and the men who were working for him were withdrawn. Wright lent Peek some men, and thereupon persecution followed. The plaintiffs' names were inserted in a "black list" by the defendant's society. [Several letters which had been sent by defendant to various contractors who had employed Wright were read, in which the writer endeavoured to persuade the contractors to dismiss the plaintiff.] In June, 1893, the plaintiffs entered into a contract with Messrs. Watkins & Company to supply and fix certain fibrous plaster work at South Kensington. Thereupon, a deputation headed by the defendant waited upon them, and the result was that Messrs. Watkins were compelled to discharge the plaintiffs.

Mr. Charles Watkins, surveyor and estate manager, was called and examined by Mr. Chitty, and said,—In June, 1893, I instructed the plaintiffs to do work at 1, Cottesmore-gardens, South Kensington. The work was started, when I received an intimation from Doyley & Co. I wrote that the plasterers must leave. In September defendant and others called at my office. He said unless I fell into line with other builders they would be obliged to call out the union men. The defendant called again on the following Saturday. I went to the works and found the men on strike. I saw the defendant and others. I wrote to Wright's men, saying I could not allow Wright to finish the work.

James Marcham, examined by Mr. J. W. Chitty, said,—I was fixing work for Wright & Co. in January, 1893. The defendant told me they were determined to smash Mr. Wright, if it cost them £6,000 and that they had got that amount in hand.

Cross-examined by Mr. Ruegg.—Wright paid the same as other men. Mine was piece-work.

Mr. Peter, foreman to Patman & Fotheringham, said that the defendant told him the plaintiffs' men were scamping their work by not fixing the slabs with screws. His objection was unfounded. Mr. J. H. Colls, builder, of Coleman-street, who was employed at the Pavilion Theatre, Whitechapel, and whose firm, Messrs. Colls & Sons, entered into a contract with the plaintiff firm for the plastering there, said that Mr. Wright's men did their work well, and he did not find that good men would not go near Wright's men.

On cross-examination the witness said that the contract with Wright had to be broken because all the union men were withdrawn, and Mr. Runtz, the architect, was anxious that the work should go on.

He (the witness) refused to enter into a conspiracy to ruin Wright.

Other evidence for the prosecution of a similar nature having been called,

Mr. Robson, Q.C., in opening the case for the defendant, said he quite admitted the right of the master to make any contract he liked. These men said, "We disapprove of certain employers." Any man had a right to say, "I won't work for that master, and I won't have anything to do with any other man who aids that master." If any section of men took up an unreasonable position society would inevitably protect itself against such conduct. A man had a right over his own labour, and a right over the labour of others where he was not guilty of malice. Throughout this case there was absolutely no evidence of malice. Mr. Hennessey was never told "I have a contract which you are seeking to make me break."

Mr. Hennessey, the defendant, was then examined by Mr. Robson, Q.C., and said:—"I am organising secretary of the National Association of Operative Plasterers. If a dispute arises between masters and men I go and see what it really is. I put it before the committee, and they advise me whether it is necessary to take action or whether they will let it go on as it is. I never had any communication with Messrs. Maxwell. On September 8 I went to Mr. Watkins with Mr. Verdon, and told him that his notice that he would only pay up to Thursday night was causing friction. Wright's name was never mentioned. Watkins said he should do as he liked. After that there was a strike. Watkins then changed his mind. I did not know then that Wright was employed there. The objection we had to Mr. Wright was that he was continually employing men and not paying them what we considered the trade union rate of wages.

Cross-examined by Mr. Lawson, Q.C.—I regarded Wright as an unfair employer. My business was to control the dispute. To get rid of Wright would be the speediest way of settling the dispute. From my point of view it would be the happiest thing that Wright should go and our men should stop. I object to Wright employing labourers to do plasterers' work. Mr. Watkins voluntarily offered to employ our men instead of Wright's men.

Mr. Botright, examined by Mr. Robson, Q.C., said,—I am a plasterer. I have worked for Wright. The usual rate is 9½d.; he paid 9d. I worked overtime and got nothing for it.

Cross-examined by Mr. Walton, Q.C.—I am a *bona-fide* plasterer. Wright said I was not a plasterer.

This was the case for the defence.

Counsel on both sides having addressed the jury,

Mr. Baron Pollock, in summing up, said that the form of action was of modern origin and had not hitherto come very much into the courts. No man had a right to do that which injured another man unless by acts he had a legal right to do. In this country every one had a right to express his opinion clearly with reference to the questions of the day. But if an individual, in order to enforce his particular views, did an act knowingly and intending to inflict an injury upon another, the law did not allow that to be done. Nor could a man say, "If you don't employ a certain class of people we shall do certain things which will injure you in your business." The question was, did the defendant say to himself, "I will go to these people and will write such letters as will prevent them from employing Mr. Wright, and then he will be obliged to come to our terms and not to exercise any free will of his own." His Lordship left the following questions to the jury:—1, Do you think that the course of conduct pursued by the defendant with regard to the employment of the plaintiff Wright was improper in the sense of being malicious—*i.e.*, with the intention of injuring him? 2. Do you think that the letters which were written were written with an improper motive to injure the plaintiff, or were written *bona fide* and with the honest intention of discharging a duty?

The jury found that there was malice on the part of the defendant in the sense in which his Lordship had used the word "malicious," and they returned a verdict of 5,00*l.* damages for the libels and 300*l.* for inducing the breaches of contract.

His Lordship gave judgment accordingly, and granted an injunction restraining the defendant from inducing, or endeavouring to induce, Messrs. Colls & Sons from breaking their contract with the plaintiffs in respect of work at the Pavilion Theatre, Whitechapel, and from inducing or endeavouring to induce any person or persons to break contracts made or hereafter to be made with the plaintiffs.

His Lordship also granted an injunction restraining the defendant from continuing to write or publish the libels complained of. A stay of execution was granted upon the terms of the defendant paying 500*l.* into Court within a week.

MEETINGS.

SATURDAY, AUGUST 3.

Liverpool Engineering Society.—Visit to the site of the Elan Water Supply of the Birmingham Corporation at Rhayader, Radnorshire.

MONDAY, AUGUST 5.

A.A. Camera Club.—Visit to Ightham Moat, near Sevenoaks.

WEDNESDAY, AUGUST 7.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

15,302.—WATER-CLOSETS: *O. Elphic.*—This patent pertains to water-closets in which the pan is emptied by syphoning, and deals with means for preventing the syphonic action being set up by emptying liquids into the basin. To effect this a pipe is used which connects the top of the syphon with the open air. The pipe is normally open, but is closed by a water-seal when the flush is started.

15,330.—WINDOWS: *W. Nicol.*—For enabling sash-windows to be detached and swivelled within apartments of buildings. Plates are, according to this invention, secured near the upper and lower ends of one side of the lower sliding-sash frame. These plates have projecting pieces, which enter recessed or slotted plates screwed to the batten-rod opposite. The sash-cord on the side opposite to which these fittings are applied is made detachable, so that the sash may be swivelled out at right-angles, and held in position by the projecting pieces fitting into the slotted plates.

15,792.—GLASS: *W. Pilkington.*—Relates to the production of corrugated sheet-glass. The heated glass-sheet is laid on a corrugated table, and is worked into shape by a roller passing over it.

22,369.—PAINT-POTS: *C. Gorringe.*—Relates to a paint-pot provided with a detachable bar, or strip, for removing surplus paint from the brush. The pot has three or more spiked feet for holding it steady when in use.

23,211.—WINDOWS: *W. Cruickshanks.*—Refers to a method of making windows so as to allow the sashes to be drawn into the room for cleaning purposes. The sash-frame is made wider on the inner side than on the outer side, and the window case, lintel, and sole are made higher and lower on the inside and outside respectively. The inner beads are removable, and by reason of the inner part of the window-case being larger, as described, the sashes may be drawn into the room.

9,416.—WINDOWS: *T. Godfrey.*—Deals with sliding windows, which have also a hinged or casement action. Each sash is furnished near the top and bottom with pintles which connect, with eyes suitably fitted, to the sash-frame. To permit of the sash swinging inwards, one of the vertical stiles is made in two parts, a portion being detachable from the sash and connected to the pulley-cord. The sashes connect by means of catches to the divided portion, and slide with the same, when raised or lowered.

9,960.—ROOFING-TILE: *K. Schelzel.*—Deals with roofing-tiles so constructed that rain-water is conducted away without washing over their joints. Each tile has a brim or flange at its edges, and the connexion of one tile with another is made by means of a fillet and groove arrangement.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 15.—13,571, A. Anderson, Bakers' Ovens.

JULY 16—13,607, W. Webb, Combination Latch for Doors and Gates.—13,628, J. Barrett, Water-closet Fittings.—13,631, E. Besunt, Door Checks.

JULY 17.—13,667, P. Bruns, Roofing Tiles.—13,676, G. Barrett, Sash Fastener.—13,679, R. Smith and J. Pavitt, Double-cut Mortice Chisel for Cutting Pulley Stiles.—13,687, W. Adcock, Drain and Sewer Pipes.—13,691, F. Rohrer, Cutting the Teeth of Saws.

JULY 18.—13,717, J. Macdonald, Oil Lamps for Removing Paint, &c.—13,719, J. Campbell, Addition to Flushing Apparatus for Water-closets.—13,720, E. Astle and C. Terry, Chimney or Ventilator Hoods or Cowls.—13,740, E. Henriques, Flushing Drains, Water-closets, &c.—13,759, J. Orton, Screws and Screw-drivers.—13,779, F. Foott, Disinfecting Apparatus for Flushing Cisterns.

JULY 19.—13,788, E. Edwards, Block or Cube for Wood Pavements.—13,790, H. Dunn, Ridge Tile for Roofs.

JULY 20.—13,888, H. Vick, Construction of Water-closets.

PROVISIONAL SPECIFICATIONS ACCEPTED.

12,051, A. Franklin, Securing door-handles.—12,216, D. Radclyffe and T. Burrows, Water-pipes of lead or the like, to prevent same bursting through freezing.—12,367, W. Thomas, Wood screws.—12,778, J. Périsse, Heating of buildings or other structures.—12,808, W. M'Intosh, Windows and their frames.—12,811, J. Rusling, Construction and arrangement of dwelling-houses and in the land appertaining thereto.—12,814, G. Beedham, Ventilators, or air extractors.—12,855, M. Butcher and A. Cameron, Window-sash apparatus.—12,922, W. Nicol, Ventilators.—12,967, J. McLauchlan, Bricks, blocks, tiles, &c., for building, paving, &c.—13,004, L. Heinzerling, Window-sash holder.

COMPLETE SPECIFICATIONS ACCEPTED.

(*Open to Opposition for Two Months.*)

11,382, W. Bailey, Machinery for bevelling glass.—17,522, W. Crombie and the Paragon Bolt Syndicate, Limited, Mortice-locks.—17,613, E. Spinney. A duplex pivot hinge.—17,865, W. Whitaker, junior, Tippers and tipper boxes of waste water-closets.—18,093, T. Robinson, Circular saw benches.—10,711, C. Schnakenburg, Paving blocks.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JULY 18.—By *Beadel, Wood, & Co.:* "Abbott's Hall," Stanford-le-Hope, Essex, and 127 a. 3 r. 10 p., f., 2,500*l.*—By *Chesterton & Sons:* F.g.r. of 60*l.*, Maryland-rd., Stratford, reversion in 77 yrs., 1,545*l.*; 11, Chester-pl., Regent's Pk., u.t. 30 yrs., g.r. 26*l.*, r. 95*l.*, 450*l.*—By *Elgood & Fuller:* 47 to 57 (odd), Marylebone-rd., Marylebone, f., 2,500*l.*—By *P. Matthews & Matthews:* 45, 46, and 47, Tenison-st., Lambeth, and a ground rent of 15*l.*, u.t. 28 yrs., g.r. 36*l.*, r. 137*l.* 10s., 970*l.*; Gale's Brickfields, Chigwell-rd., Woodford, 10 acres, f., with the goodwill; 2,550*l.*; a plot of bldg. land, Chigwell-rd., f., 105*l.*; a plot of bldg. land, Maybank-rd., f., 200*l.*; a plot of bldg. land, Crescent-rd., f., 150*l.*; Gale's Brickfields, Hainault-rd., Romford, 10 acres, f., with the goodwill, 2,150*l.*; a plot of bldg. land, Hainault-rd., f., 200*l.*; a plot of bldg. land, Rosedale-rd., f., 120*l.*; 2 freehold cottages, Chigwell-rd., Woodford, 310*l.*—By *Newbon & Co.:* 15, Holford-sq., Pentonville, u.t. 37 yrs., g.r. 5*l.*, e.r. 52*l.*, 580*l.*; f.g.r. of 122*l.*, Somers-rd., &c., Brixton, reversion in 82 yrs., 3,175*l.*; 47, 54, 56, 62, 68, 70 and 87, Grove-pk.-rd., Tottenham, u.t. 87 yrs., g.r. 34*l.* 10s., 1,030*l.*; "Hjortland Villa," Friern-pk., Finchley, f., e.r. 40*l.*, 430*l.*; 76, Aberdeen-rd., Highbury, u.t. 93 yrs., g.r. 10*l.* 10s., e.r. 80*l.*, 600*l.*—By *Nightingale, Phillips, & Page:* 29, Hampden-rd., Holloway, f., and a f.g.r. of 3*l.* 10s., reversion in 69 yrs., 345*l.*; 41, 43, 49, 53, 59 and 61, Fleet-rd., Hampstead, u.t. 55½ yrs., g.r. 44*l.*, r. 326*l.* 6s., 1,375*l.*; 12, Egbert-st., Regent's-pk., u.t. 67 yrs., g.r. 7*l.*, r. 40*l.*, 310*l.*; 27 and 28, Addington-sq., Camberwell, u.t. 10 yrs., g.r. 20*l.*, r. 76*l.*, 85*l.*; 216 to 226 even, York-rd., Battersea, u.t. 56 yrs., g.r. 24 yrs., r. 216*l.*, 1,770*l.*—By *Stimson & Sons:* 91 and 92, London Wall, City of London, u.t. 4 yrs., g.r. 225*l.*, r. 590*l.*, 485*l.*; 42, New North-rd., Hoxton, u.t. 40 yrs., g.r. 7*l.* 10s., r. 91*l.*, 360*l.*; 10, Quadrant-rd., Islington, u.t. 50 yrs., g.r. 8*l.*, r. 55*l.*, 450*l.*; 10, Queen Elizabeth's Walk, Stoke Newington, u.t. 44½ yrs., g.r. 6*l.* 6s., r. 36*l.*, 400*l.*; 4, East Dulwich-rd., Peckham, u.t. 24 yrs., g.r. 12*l.* 10s., r. 42*l.* 10s., 260*l.*; 53 and 54, Frith-st., Shaftesbury-av., f., r. 185*l.*, 3,735*l.*; 4, Charlwood-rd., Putney, u.t. 91¼ yrs., g.r. 8*l.*, r. 35*l.*, 320*l.*; 363, Goldhawk-rd., Hammersmith, u.t. 30¾ yrs., g.r. 4*l.* 10s., r. 35*l.*, 200*l.*; 37, Brecon-rd., Fulham, u.t. 93 yrs., g.r. 4*l.*, 205*l.*; 3, Catlin-st., Old Kent-rd., u.t. 51½ yrs., g.r. 5*l.*, 210*l.*—By *Farebrother, Ellis, Clark, & Co.:* "Craigby," Manor-rd., Teddington, f., r. 40*l.*, 485*l.*; "Dawick," Manor-rd., f., r. 40*l.*, 490*l.*; 6 and 8, Winchester-st., Pimlico, u.t., 42 yrs., g.r. 17*l.*, r. 105*l.*, 655*l.*—By *Wheeler & Son* (at Chelsea): 1, Alfred-pl. West, South Kensington, u.t. 33¾ yrs., g.r. 10*l.*, r. 95*l.*, 1,300*l.*

JULY 19.—By *A. Barton:* 5, Westmoreland-st., Pimlico, u.t. 34¾ yrs., g.r. 10*l.*, r. 65*l.*, 595*l.*; 20, Sutherland-st., u.t. 38½ yrs., g.r. 8*l.*, r. 84*l.* 10s., 375*l.*; 18 and 19, Gloucester-st., Lambeth, u.t. 60 yrs., g.r. 6*l.*, r. 65*l.*, 505*l.*—By *F. J. Bisley & Sons:* 107, 109, 111, and 113, Lancaster-rd., Notting Hill, u.t. 51 yrs., g.r. 20*l.*, r. 170*l.*, 1,520*l.*; 20, 22, 24, 26, 32, 34, and 36, Folkestone-rd., Edmonton, u.t. 91 yrs., g.r. 25*l.* 14s. 6d.; 55 to 67 odd, Lawrance-rd., u.t. 91 yrs., g.r. 22*l.* 1s.; 93 and 95, Brettenham-rd., u.t. 90 yrs., g.r. 6*l.* 6s.; 125A, 127, 129, 131, and 133, Brettenham-rd., u.t. 91 yrs., g.r. 19*l.* 19s., 1,065*l.*; 42 and 48, Whitfield-rd., Plashet, u.t. 88 yrs., g.r. 7*l.*, 215*l.*—By *Walter Hall:* 42, 44, and 46, Allen-rd., Stoke Newington, u.t. 56 yrs., g.r. 15*l.*, r. 81*l.*, 510*l.*; 26, 28, and 34, Hemstall-road, Hampstead, u.t. 96 yrs., g.r. 36*l.*, r. 135*l.*, 1,050*l.*—By *Norton, Trist, & Gilbert:* "Seymour Lodge," Sydenham Hill-rd., Sydenham, f., and 1 a. 2 r. 10 p., e.r. 140*l.*, 2,000*l.*; "Nevil Lodge," Charles-st., and 2 a. 3 r. 23 p., f., r. 90*l.*, 1,850*l.*; 8, 9, 10, and 11, Charles-st., f., r. 53*l.* 4s., 590*l.*; "Gothic Lodge," Charles-st., and "Percy Lodge," f., r. 61*l.*, 980*l.*; 46 and 48, Russell-st., f., r. 26*l.*, 135*l.*; i.g.r. of 116*l.* 16s., Bolney-st., &c., Clapham, u.t. 26 and 40 yrs., g.r. 100*l.*, 190*l.*; 11 and 12, Addle-st., City of London, u.t. 5½ yrs., g.r. 100*l.*, r. 725*l.*, 2,100*l.*; 12, Cottesmore-gardens, Kensington, u.t. 37 yrs., g.r. 9*l.* 12s., r. 120*l.*, 1,300*l.*—By *Moss & Jameson:* "The Albion" beer-house, Mill-lane, Bray, Berks., f., r. 30*l.*, 700*l.*; three plots of bldg. land, Mill-lane, 4 a. 1 r. 20 p., f., 1,605*l.*; "Home View," Mill-lane, and 2 a. 0 r. 24 p., f., 600*l.*; Bray Wharf, 1 a. 0 r. 18 p., and a cottage, Mill-lane, f., 3,325*l.*; 132 and 134, Turnpike-lane, Hornsey, f., r. 66*l.*, 1,750*l.*; a freehold shop and premises, Clarendon-rd., r. 20*l.*, 355*l.*; a freehold plot of bldg. land, Clarendon-rd., 350*l.*; 22, Woodberry Down, Finsbury Pk., u.t. 23 yrs., g.r. 15*l.*, 1,200*l.*; 1 to 4, Hermitage Green, Streatham, copyhold, 110*l.*

JULY 20.—By *Messrs. Spelman* (at Norwich): A freehold and copyhold farm, Tibenham, Norfolk, 84 a. 1 r. 15 p., 1,220*l.*; an enclosure of land, f., 1 a. 2 r. 19 p., 24*l.*; three freehold cottages and gardens, Welborne, Norfolk, 0 a. 3 r. 19 p., 140*l.*; two enclosures of pasture land, f., 19 a. 0 r. 11 p., 305*l.*

JULY 22.—By *Furber, Price, & Furber:* 38, 40, and 42, Pentonville-rd., Pentonville, f., and 36 and 44, Pentonville-rd., u.t. 21 and 14 yrs., together with the assets, goodwill, and stock of George Betjemann & Sons, 13,000*l.*—By *Eastman Bros.:* 517 and 519, Lordship-lane, Dulwich, f., r. 105*l.*, 1,800*l.*; 72, London-rd., Forest-hill, f., r. 50*l.*, 680*l.*; 105, 107, and 109, Devonshire-rd., u.t. 68 yrs., g.r. 15*l.*, r. 90*l.*, 625*l.*; 38 and 44, Manor-rd., Brockley, u.t. 65 yrs., g.r. 7*l.* 7s. 4d., r. 80*l.*, 720*l.*—By *Elliott, Son, & Boyton:* 13, Loveridge-rd., Kilburn, u.t. 83 yrs., g.r. 7*l.* 10s., r. 50*l.* 14s., 245*l.*; 196, Loveridge-rd., u.t. 82 yrs., g.r. 7*l.* 10s., r. 50*l.*, 220*l.*—By *Montagu, Robinson, & Watson:* Enclosures of land, Shabbington, Bucks, 63 a. 1 r. 16 p., f. 2,750*l.*—By *Osborn & Mercer:* "Formosa," Lymington, Hants., and 2½ acres, f., 2,125*l.*—By *Belton & Sons:* 158, 160, 162, 164, and 176, Railton-rd., Herne Hill, u.t. 71 yrs., g.r. 31*l.* 10s., r. 160*l.*, 1,390*l.*—By *Buckland & Sons:* 6 and 7, Queen's-gardens, Windsor, u.t. 77 yrs., g.r. 45*l.*, 1,350*l.*—By *A. H. Turner & Co.:* A freehold residence, Fordbridge-rd., Ashford, Middlesex, and two plots of land adjoining, about 1¾ acres, f., 900*l.*

JULY 23.—By *Seymour & Waring:* A perpetual water revenue of 200*l.* per annum (minimum), Maidstone Waterworks Co., 5,750*l.*—By *Bradshaw Brown:* "The Britannia Dry Dock," West Ferry-rd., Millwall, f., 4,500*l.*—By *Chinnock, Galsworthy, & Co.:* 44, Crozier-st., Lambeth, u.t. 36½ yrs., g.r. 5*l.* 12s., r. 40*l.*, 345*l.*—By *S. B. Clark & Son:* 38, Upper Charlton-st., Fitzroy-sq., u.t. 16¾ yrs., g.r. 24*l.*, e.r. 80*l.*, 320*l.*—By *E. H. Henry:* 25, Wyvil-rd., Wandsworth, u.t. 51 yrs., g.r. 4*l.* 17s. 6d., 265*l.*; i.g.r. of 10*l.*, Chestnut-grove, Balham, u.t. 40 yrs., g.r. nil., 175*l.*; 61, 63, and 65, Chestnut-grove, u.t. 40 yrs., g.r. nil., 355*l.*; a plot of bldg. land, Church-rd. (near to), Mitcham, f., 17*l.*—By *E. & H. Lumley:* L 3, The Albany, Piccadilly, f., 850*l.*—By *Rumball & Edwards:* A freehold residence and 1 acre, New Town, Hatfield, Herts., 1,175*l.*—By *Debenham, Tewson, & Co.:* "Flint Cottage," Mundford, Norfolk, and 1 a. 0 r. 25 p., f., 250*l.*—By *Bean, Burnett, & Eldridge:* "Armadale" and "Grasmere House," High-st., Chingford, u.t. 94 yrs., g.r. 16*l.* 8s., r. 82*l.*, 750*l.*; 4 and 5, Grove Hill-rd., Woodford, u.t. 40 yrs., g.r. 7*l.*, 190*l.*; 7 and 8, Steele's-rd., Haverstock Hill, u.t. 69 yrs., g.r. 25*l.*, 1,710*l.*; 59, Gayton-rd., Hampstead, u.t. 73½ yrs., g.r. 6*l.*, r. 40*l.*, 340*l.*—By *Wheeler & Son* (at Camden Town): 3, Hawley-st., Camden Town, u.t. 35½ yrs., g.r. 5*l.*, r. 35*l.*, 285*l.*

JULY 24.—By *Barker, Cathie, & Palmer:* "The Manchester Arms" beerhouse, Tabard-st., Southwark, u.t. 36 yrs., g.r. 35*l.*, 440*l.*; "The Cape of Good Hope" beerhouse, Hope-street, Battersea, f., 400*l.*; "The Hop Pole" beerhouse, Green Man-st., Islington, u.t. 34 yrs., g.r. 31*l.* 10s., 85*l.*; 398 and 400, Fulham-rd., Fulham, f., r. 100*l.*, 1,500*l.*; 392, 394, and 396, Fulham-rd., f., r. 130*l.*, 1,740*l.*; 80, Chalk Farm-rd., Kentish Town, and 12, Belmont-st., a profit rental of 70*l.* for 36 yrs., 610*l.*; i.g.r. of 40*l.*, Belmont-st., u.t. 36 yrs., g.r. nil, 425*l.*—By *A. Blackford:* 246, Dalston-lane, Hackney, u.t. 56½ yrs., g.r. 1*l.*, r. 45*l.*, 350*l.*—By *Hooker & Webb:* 5, Park-rd., Beckenham, u.t. 70 yrs., g.r. 40*l.*, 1,900*l.*—By *W. R. Smith & Son:* 15, Frederick-rd., Walworth, u.t. 45 yrs., g.r. 6*l.* 10s., 170*l.*; 9 and 10, Pratt-st., Lambeth, f., 500*l.*—By *Fuller, Moon, & Fuller:* An enclosure of land, Whyteleafe Valley-rd., Kenley, Surrey, 3 a. 1 r. 9 p., f.,

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Schools, Ludlow	Grammar Sch. Govrs.	25*l.* 10*l.*	Aug. 26

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Manager's House, Keighley, Yorks		Judson & Moore	Aug. 6
Alterations, &c. to Cardiff Arms Hotel, Hirwain, Wales		T. Roderick	do.
Three Houses, Holmfield, Halifax		Petty & Ives	do.
Residence, near Gelli, Llanelly	W. J. Rees	W. Griffiths	do.
Macadam (500 tons), near Liverpool	Little Woolton U.D.C.	J. Bourne	do.
Road Materials	Maidstone U.D.C.	F. Bunting	do.
Street Improvement Works, Bristol	St. George U.D.C.	T. L. Lewis	do.
Refuse Destructor Buildings, Lumley-street	Sheffield Corporation	C. F. Wike	Aug. 7
Sewerage Works	Kersley (Lancs.) U.D.C.	T. Nuttall	do.
Banking Premises, Market-place, Dewsbury	Lancs. & Yorks. Banking Co.	J. L. Fox	do.
School	North Kelsey (Lincs.) School Board	H. C Scaping	do.
Flint Road Metal	High Wycombe R.D.C.	E. Birks	do.
Rebuilding Rose and Crown Inn, Glenston		J. W. Grundy & Son	do.
Additions to Asylum	Ipswich Corp.	*Official*	do.
Street Works, Bridge-street	Berwick S.A.	do.	do.
Pipe-laying, Tanks, &c. Holme	South Westmoreland R.D.C.	do.	do.
*Drivers' Lodgings, Kentish Town; Painting Works, Derby	M. R. Co.	do.	Aug. 8
Additions, &c. to Lodges at Pumping Station, Arthington	Leeds Corporation	do.	do.
Subway and Office, Lockwood, Yorks	L. & Y. Railway Co.	do.	do.
Club Premises, near Wigan	Hindley Green Social Club		do.
School Buildings, Troon, Cornwall	Camborne School Bd.	J. Hicks	do.
*Erection of Schools	Harwich Sch. Bd.	J. W. Start	do.
Paving and Kerbing, Oldham-road	Failsworth (Lancs.) U.D.C.	C. J. Lomax	do.
*Alterations at Workhouse	Kensington Guardians	T. W. Aldwinckle	do.
*Alteration to Servants' Quarters	Forest Gate Sch. Dist.	G. E. Holman	do.
Timber Wharf, Prince Rock Quays, Plymouth	Martin Bros. Lim.	*Official*	do.
Schools (St. Paul's), Tregolls-road, Truro	E. Yelland		Aug 9
House, &c. Chickenley Heath, Dewsbury		Holtom & Fox	do.
Warehouse, &c. Hipperholme, near Halifax		Medley Hall	do.
Waterworks, Derry Mullen, Ireland	Ballinasloe Town Commissioners	*Official*	do.
Sewerage Works, Ravenglass	Bootle R.D.C.	do.	Aug. 10
Church Room, St. Paul's, Colwyn Bay	Mr. Lord		do.
Waterworks	Castlebar (Ireland) Union	C. Mulvany	do.
Farmhouse, Bank Top, Greetland, Halifax		Horsfall & Williams	do.
Additions, &c. to Schools, Meltham, near Huddersfield		J. Kirk & Sons	do.
Washhouse and Laundry at the Workhouse	Colchester Union	G. H. Page	Aug. 12

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	8/0/0 — 9/0/0
Teak, E.I.	load	10/0/0 — 16/0/0
Sequoia, U.S. ft. cu		1/10 — 2/2
Ash, Canada load		2/15/0 — 4/0/0
Birch, do.		2/5/0 — 3/10/0
Elm, do.		3/10/0 — 4/15/0
Fir, Dantsic, &c.		2/15/0 — 3/10/0
Oak, do.		3/15/0 — 4/15/0
Canada		6/0/0 — 7/10/0
Pine, Canada red		0/0/0 — 0/0/0
Do. Yellow		2/15/0 — 5/0/0
Lath, Dantsic, fath		4/10/0 — 5/10/0
St. Petersburg		5/0/0 — 6/10/0
Wainscot, Riga, &c., log		4/10/0 — 6/10/0
Odessa, crown		4/10/0 — 6/10/0
Deals, Finland 2nd & 1st std 100		7/0/0 — 8/10/0
Do. 4th & 3rd		7/0/0 — 8/0/0
Do. Riga		7/0/0 — 8/0/0
St. Petersburg, 1st yellow		9/10/0 — 12/0/0
Do. 2nd yellow		7/10/0 — 9/0/0
Do. white		8/0/0 — 9/10/0
Swedish		7/0/0 — 15/10/0
White Sea		7/10/0 — 15/0/0
Canada, Pine 1st		22/0/0 — 24/0/0
Do. do. 2nd		16/10/0 — 17/10/0
Do. do. 3rd, &c.		8/5/0 — 10/10/0
Do. Spruce, 1st		9/0/0 — 10/10/0
Do. do. 3rd and 2nd		6/10/0 — 7/10/0
New Brunswick		6/0/0 — 7/0/0
Battens, all kinds		5/0/0 — 21/0/0
Flooring boards, sq., 1 in. prep. 1st		0/9/6 — 0/14/6
Do. 2nd		0/6/6 — 0/11/6
Other qualities—		0/4/6 — 0/7/6
Cedar, Cuba	ft.	/3 — /4
Honduras, &c.		/3 — /4½
Mahogany, Cuba St. Domingo, cargo av.		/3 — 1/0
Mexican do. do.		/3 — /4
Tobasco do. do.		/3½ — /6
Honduras do.		/3½ — /5½
Box, Turkey	ton	4/0/0 — 15/0/0
Rose, Rio		7/0/0 — 16/0/0
Bahia		6/0/0 — 15/0/0
Satin, St. Domingo		0/0/5 — 0/1/0

TIMBER (*continued*).

Satin, Porto Rico	0/0/6	0/1/6
Walnut, Italian	0/0/3½	0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/5/2 — 0/0/0
Bar, Welsh, in London		5/12/6 — 5/15/0
Do. do. at works in Wales		5/2/6 — 5/5/0
Do. Staffordshire, in London		6/0/0 — 6/10/0
Copper—British cake and ingot		48/0/0 — 48/10/0
Best selected		49/0/0 — 49/10/0
Sheets, strong		54/0/0 — 0/0/0
Chili bars		45/7/6 — 45/12/7
Yellow Metal		0/0/4½ — 0/0/4½
Lead—Pig, Spanish	ton	11/0/0 — 0/0/0
English com. brands		11/0/0 — 11/2/6
Sheet, English, 6 lbs. per sq. ft. and upwards		11/10/0 — 0/0/0
Pipe		12/0/0 — 0/0/0
Zinc—English sheet	ton	18/10/0 — 0/0/0
Vieille Montagne		19/10/0 — 0/0/0
Tin—Straits		65/0/0 — 65/10/0
Australian		65/15/0 — 66/5/0
English Ingots		70/0/0 — 70/10/0
Banca		66/10/0 — 67/0/0
Billiton		66/0/0 — 66/10/0

OILS.

Linseed	ton	21/0/0 — 21/10/0
Cocoanut, Cochin		24/0/0 — 24/10/0
Do. Ceylon		22/10/0 — 0/0/0
Palm, Lagos		22/0/0 — 0/0/0
Rapeseed, English pale		22/5/0 — 22/10/0
Do. brown		20/15/0 — 21/0/0
Cottonseed ref.		18/0/0 — 18/5/0
Oleine		20/10/0 — 21/10/0
Lubricating, U.S.		5/0/0 — 8/3/0
Do. black		4/6/0 — 6/6/0
Tar—Stockholm	barrel	1/0/0 — 1/0/6
Archangel		0/15/6 — 0/0/0

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Tar Asphalt and Artificial Stone Paving, Hounslow	Heston and Isleworth U.D.C.	W. A. Davies	Aug. 12
Schools, Trooper-terrace, Caddy Field	Halifax School Board	J. F. Walsh	do.
Enlarging Schools, Ashbourne-road	Derby School Board	Naylor & Sale	do.
Schools	Romford School Board	C. Bell	do.
Convalescent Home, Grange-over-Sands		W. T. Aggutter	do.
Church, Maesteg, near Bridgend, Glam.		J. W. Rodger	do.
*Workmen's Dwellings, Bethnal Green	LondonCountyCouncil	*Official*	do.
*Post Office, Tipton	Com. of H. M. Works	do.	Aug. 13
*Two Houses, for Coast Guards, Drove End, Lincs.	The Admiralty	do.	do.
Drainage Works	Uttoxeter (Salop) Un.	do.	do.
Cottage, near Magor, Mon.	G. W. Ry. Co.	do.	do.
Police Station, St. Boswells	Kelso C. C.	do.	do.
*Erection of Buildings, &c.	Cardiff Exhib. (1896) Council	E. Seward	Aug. 14
School and Residence, Llangoed, Anglesey		R. Glynne Davies	do.
*Iron and Steel Work at Technical Schools	Manchester Corp.	Spalding & Cross	Aug 16
Additions to Lunatic Asylum, Devizes	Wilts C. C.	C. S. Adye	Aug. 17
Pipe Sewer, &c. (900 yards)	Clitheroe R.D.C.	A. E. Preston	ao.
Macadam (400 tons), near Wigan	Standish-with-Langtree U.D.C.	*Official*	do.
*Additions to Asylum	Wilts County Asylum	do.	do.
*Sewerage Works	Erith U.D.C.	G. Chatterton	Aug. 19
Flagging, Edging, and Setts	Methley (Yorks) U.D.C.	T. Thompson	do.
Sewers, Egremont, Cheshire	Wallasey U.D.C.	A. Salmon	Aug. 20
Lock-up, Ashbourne	Derbyshire C. C.	J. S. Story	Aug. 21
Water Main, Watling-street	Wellington (Salop) T.C.	*Official*	do.
*Public Baths and Laundry	Commrs. for Baths and Washhouses, Deptford	T. Dinwiddy	Aug. 24
Cattle Market, George Close, St. Martin's.	Stamford Corp.	J. Richardson	Aug. 26
*Stables, Vauxhall Bridge-road		A. A. Kemp	Aug. 28
*Trial Borings	Nottingham Corp.	D. M. S. Gaskin	Aug. 29
*Wagon and Carts	Borough of West Ham	L. Angell	Aug. 31
*Semi-detached Villas, Harrow	War Department	*Official*	No date
*Painting Works, Norwich and Warley			do.
Two Houses, Dunkirk-lane, Leyland, Lancs	W. Holmes	W. Forrester	do.
Additions to School Buildings, High-street	Arnold (Notts) Sch. Bd.	W. H. Higginbottom	do.
School Buildings, Church Drive	do.	do.	do.
Additions to Workhouse	Stratford-on-Avon Un.	T. T. Allen	do.
*Erection of Schools	Willesden Sch. Bd.		do.
Four Houses, Conisborough, Yorks		H. L. Smethurst	do.
New Streets, Bradford Moor, Yorks		J. Hindle	do.
Workmen's Institute, Beestwood, near Nottingham		E. A. Johnson	do.
Five Houses, Northcote-place, Newcastle, Staffs		E. Jones	do.

PUBLIC APPOINTMENTS

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Surveyor and Inspector of Nuisances	Leominster T. C.	100*l.*	Aug. 8
*Surveyor and Inspector of Nuisances	Hertford Corp.	250*l.*	ao.
*Working Foreman—Sewer Work	Borough of Ilkeston		do.
*Surveyor's Assistant	Bromley U.D.C.	2*l.*	No date

Those marked with an asterisk (*) are advertised in this Number. *Contracts, pp.* iv., vi., viii., *and* xx. *Public Appointments, pp.* xviii. *and* xx.

250*l.*; enclosures of land, Coulsdon-rd., 41 a. 3 r. 4 p., f., 1,700*l.*—By *H. Griffin*: 57, 59, and 61, High-st., Battersea, u.t. 85 yrs., g.r. 26*l.*, r. 90*l.*, 560*l.*; 26, 28, 30, and 32, Granfield-st., u.t. 85 yrs., g.r. 17*l.* 10s., r. 104*l.*, 465*l.*; 119 and 121, York-rd., u.t. 48 yrs., g.r. 4*l.*, r. 46*l.* 16s., 335*l.*; 31 and 33, Mendip-rd., u.t. 52 yrs., g.r. 4*l.* 4s., r. 29*l.* 18s., 180*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; .g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ACCRINGTON (Lancs.).—For the execution of street works, for the Corporation, Mr. W. J. Newton, C.E., Town Hall, Accrington:—

William Hindle Bury, as per schedule, 2 streets.
George Cunliffe & Son, as per schedule, 7 streets.

AYLESBURY.—For the supply of 400 tons broken granite, &c., for the Urban District Council. Mr. J. H. Bradford, Surveyor:—

	1¾-in. granite. s. d.	Screenings. s. d.
H. N. Trye	9 3	7 6
Charles Abell	9 3	8 0
Mendip Granite Works	9 3	8 9
S. Trickett & Sons	9 6	7 4
Narboro' and Enderby Co., Lim.	9 6	8 4
J. J. Large	9 9	7 3
Whitwick Granite Co.	10 0	7 7
Mancetter Granite Co.	10 2	—
Croft Granite Co.	10 3	7 0
John Beak	10 3	7 9
Fergusson & Starkey	10 4	8 3
W. Grimley & Son	10 4	8 6
Groby Granite Co.	10 6	7 3
Enderby and Stony Stanton Granite Co.	10 6	7 6
E. J. Van Praagh & Son	10 9	8 9
Ellis & Everard	11 0	7 3
Buxton Lime Firms Co.	11 6	12 6
Mountsorrel Granite Co., Leicester*	11 6	8 3
Clee Hill Co., Ludlow*	12 11	10 7
Clee Hill Dhu Co.	12 11	10 10
Field & Mackay	12 11	10 7

* Accepted.

BARNSLEY.—Accepted for the erection of five houses, &c., Old Mill-lane, for Mr. William Foulstone. Messrs. Senior & Clegg, architects, 15, Regent-street, Barnsley. Quantities by architects:—

Masonry.—E. R. Taylor, Barnsley	£860 0
Joinery.—Duncan & Jones, Ardsley, near Barnsley	310 0
Plumbing.—H. Ashworth, Barnsley	43 0
Plastering.—T. Marshall, Barnsley	81 0
Slating.—M. Fleming, Barnsley	64 0
Painting.—Beaumont Bros., Barnsley	17 17

BARNSLEY.—For the erection of three houses, &c., Fitzwilliam-street, Hoyland-common, for Mr. Jackson. Mr. W. J. Sykes, architect, Hoyland, near Barnsley:—

M. A. Hogue, Hoyland-common, near Barnsley*.....£547 10

* For the whole of the works.

BEVERLEY (Yorks.).—Accepted for sewering, paving, &c., Pasture-terrace, for the Corporation. Mr. G. S. Hird, Borough Surveyor, Town Hall, Beverley:—

Jas. Constable, Newbegin, Beverley £447 8 9

BRISTOL.—For the execution of street works under the Private Street Works Act, 1892, for the St. George Urban District Council. Mr. T. L. Lewis, Surveyor, Parochial Offices, St. George, near Bristol:—

Thomas & Webb*	£3,102
Frederick Martin†	138

* For Gratitude-road, Co-operation-road, St. Mark's-grove, Graham-road, Callybrook-street, Victoria-road, Heber-street, Bellevue-road, Brighton Park, Hanover-street, Nicholas-road, Beaconsfield-road, Salisbury-street.

† Victoria Park. Two mile hill.

BRISTOL.—For the excavation and construction of lake, &c., St. George, for the Urban District Council. Mr. T. L. Lewis, Engineer and Surveyor, Parochial Offices, St. George, Bristol. Quantities by the Engineer:—

J. E. Stone	£4,222 19 10	Thomas & Webb	£1,730 15 5
John Williams	2,466 13 2	George Jones	1,732 6 7
G. H. Wilkins	2,369 1 4	Fredk. Martin, St. George*	1,450 9 6
Lloyd & Powell	2,211 9 11		

[Engineer's estimate, £2,061.]

* Accepted.

BRENTFORD.—For the erection of public baths, Clifden-road, for the District Council:—

Godson & Sons	£6,077 0 0	John Bloomer	£4,999 0 0
Higgs	6,075 0 0	John Ball	4,904 2 4
Hansen	5,651 0 0	James Barnes, Brentford*	4,850 0 0
R. N. Hughes	5,437 0 0		
Ford & Sons	5,346 0 0		

* Accepted.

BURTON-ON-TRENT.—For the erection of a sixty-quarter malting in Wood-street, for Messrs. R. Peach & Co. Mr. R. Stevenson, architect, Imperial Chambers, Burton-on-Trent. Quantities by the architect:—

	Wood and Concrete Floors.	Iron and Concrete Floors.
Chamberlain Bros.	£5,428 0	£5,349 0
Geo. Kennard	5,338 0	5,449 0
J. & J. Hunter	5,300 0	5,365 0
Walker & Slater, Derby	5,250 0	5,325 0
Geo. Hodges	5,228 0	5,284 0
R. Kershaw	5,200 0	5,335 0
W. A. Stevenson	5,198 0	5,260 0
T. Lowe & Sons	5,170 0	5,240 0
Henry Edwards (accepted)	5,106 10	5,249 0

[Rest of Burton-on-Trent].

BUSHEY (Herts.).—For new photo-etching works, for Messrs. André & Sleigh, Ltd. Messrs. J. E. K. & J. P. Cutts, architects, 34, Maiden-lane, Covent Garden:—

C. Miskin	£4,488	T. Turner, Ltd.	£4,061
W. Judge	4,280	C. Brightman	3,795
J. Darvill	4,123	Clifford & Gough	3,765

CARDIFF.—For the erection of fireproof warehouses, Tunnel-court, for Mr. J. J. Lewis. Mr. David C. Salmond, C.E., architect, 7, Windsor-place, Cardiff. Quantities by architect:—

T. R. Waterman	£3,313 5 2	Henry Gibbon	£3,000 0 0
R. Cox & Bardo	3,197 0 0	J. H. Venning	2,968 5 1
S. Shepton & Son	3,160 0 0	Scott & Williams	2,940 18 8
Keene & Wells	3,158 0 0	John Gibson	2,916 0 0
D. J. Davies	3,100 0 0	E. R. Evans & Bros.	2,895 8 0
James Allan	3,100 0 0	E. Turner & Sons	2,888 0 0
David Davies	3,080 0 0		

[All of Cardiff.]

COMPTON GIFFORD (Devon).—For the execution of sewerage and road-works, for the Urban District Council. Mr. R. H. Worth, surveyor, 42, George-street, Plymouth:—

Construction of 12-in. Pipe-sewer.

J. Goad & Co.	£29 18 6	C. L. Duke	£20 14 7
J. Ford, jun.	28 0 0	E. Duke, Gascoigne-place, Plymouth*	19 3 6
Paynter & Davy	24 10 6		
J. Shaddock	21 1 10		

Road Widening.

J. Ford, jun.	£112 0 0	Paynter & Davy	£92 5 0
E. Duke	106 0 11	J. Goad & Co.*	88 0 0

Cabstand.

J. Ford, jun.	£160 0 0	Paynter & Davy	£109 12 0
J. Shaddock	118 18 0	E. Duke	105 7 6
J. Goad & Co.	110 0 0	C. L. Duke*	104 11 3

* Accepted.

COLCHESTER.—For building Catholic Schools in Priory-street Mr. W. Scargill, architect :—
Alfred Diss (accepted conditionally).....£1,300
Boundary wall to above.
Wiles (accepted conditionally).....£44

CRICKHOWELL (Wales).—For the erection of a villa-residence, near Llangattock Wharf, for Mr. Wm. Thomas and Mr. John Richards. Mr. John Vaughan Richards, architect, Llangattock, Crickhowell. Quantities by architect :—

T. Jones & Sons	£486 10	George Griffiths, Crick-	
Thomas Morgan	470 0	howell (accepted)	£378 10

DARLINGTON.—Accepted for additions to the Training College, for the Committee of the Training College. Mr. J. P. Pritchett, architect, 24, High-row, Darlington. Quantities by the architect :—

Brick, Stone, and Plaster Work.—H. Slougill, Darlington	£620 3 7
Slating.—J. Atkinson & Son, West Hartlepool	75 15 0
Carpentry and Joinery.—J. Renshaw, Darlington	305 0 0
Plumbing and Glazing.—T. Lishman, Darlington	105 0 0
Painting.—T. Metcalfe, Darlington	17 10 0
Science Fittings.—School Furnishing Co. Darlington	128 15 0

DUNDEE.—Accepted for additions to the Royal Asylum. Mr. T. S. Robertson, architect, St. Andrew's Buildings, Seagate, Dundee :—

Masonry.—John Bruce, Lochee	£3,600
Joinery.—John Morrison, Lochee	
Plumbing.—David Brown, Dundee	
Slating.—Andrew Buttar, Dundee	
Plastering.—James Labrine, Dundee	
Glazing.—Lindsay & Scott, Dundee	
Tile Laying.—G. H. Nicoll & Co., Dundee	
Steel Beams.—Beath & Keay, Dundee	

EPSOM.—For the execution of sewerage works, Cheam and Cuddington, for the Urban District Council. Mr. John Anstie, Engineer, 17, Victoria-street, Westminster, S.W. :—

A. Kellett	£11,636	James Dickson	£10,225
George Osenton	10,839	George Bell	9,991
C. W. Killingback & Co.	10,597	Edmund Iles	9,545
R. Ballard, Ltd.	10,579	John Shunn	9,377
A. F. James	10,572	William Cunliffe, Kings-	
B. Cooke & Co.	10,567	ton-on-Thames*	9,142
John Jackson	10,267	* Accepted.	

GLOUCESTER.—For the erection of a sanitary depot, &c., Seymour-road, for the Corporation. Mr. R. Read, C.E., City Surveyor, Guildhall, Gloucester. Quantities by Mr. F. E. Godwin, Heathville-road, Gloucester :—

H. A. Forse	£6,335 0 0	D. C. Jones & Co.	£5,785 15 10
G. H. Wilkins & Co.	6,300 0 0	Gurney Bros.,	
Alfd. King & Sons	6,298 0 0	Gloucester*	5,677 0 0
Wm. Bowers & Co.	5,791 18 4	* Accepted.	

GODALMING.—For proposed new house, Holloway-hill, Godalming, Surrey, for Mr. Stephen Day. Messrs. Welman & Street, architects, Godalming and Guildford, Surrey. Quantities supplied by Mr. Henry Theobald, 48, Finsbury-pavement, London, E.C. :—

Higglett & Hammond	£1,997	Harris & Son	£1,695
Tompsett & Kingham	1,940	Mitchell Bros.	1,665
Humphreys	1,810	Milton*	1,660
Horn	1,744	* Accepted.	

GRANTHAM.—For the erection of citadel buildings, London-road, for the Salvation Army. Mr. Alex. Gordon, architect, 101, Queen Victoria-street, E.C. :—

J. Guttridge	£2,189 0 0	Solden Hipwell	£1,520 0 0
Hockley & Son	1,725 5 0	Walker Bros., &	
H Burrows & Sons	1,697 10 0	Parks	1,500 0 0
J. J. Smith & Co.	1,550 0 0	Rhodes Bros.	1,475 0 0
T. Morgan	1,531 14 8		

GUILDFORD.—For drainage of twenty-three houses in Pannell's Terrace, Chertsey-street, Guildford, for Mr. Frederick Ballard. Mr. A. J. Sturges, architect and surveyor, High-street Chambers, Guildford :—

P. C. May	£623	Robt. Smith	£508
Higlett & Hammond	575	W. Cunliffe, Kingston-upon-	
Ellis Stanley	558	Thames*	420

* Accepted subject to modification.

HANLEY (Staffs.).—For the erection of school buildings, Cauldon-road, for the School Board. Mr. E. E. Scrivener, architect, Howard-place, Hanley. Quantities by architect :—

Wm. Whitfield	£3,959 0	C. Cornes	£3,775 0
T. Godwin	3,935 11	H. P. Embrey	3,700 0
N. Bennett	3,858 0	Wm. Cooke	3,690 0
J. Bagnall	3,791 10	G. Ellis, Hanley*	3,680 0
		* Accepted.	

HECKMONDWIKE.—Accepted for laying out 25 acres of land for sewage farm, Ravensthorpe, for the Urban District Council. Mr. James Saville, Surveyor, Market Offices, Heckmondwike :—
A. Graham & Sons, Huddersfield.....£3,740

HELSTON (Cornwall).—For the erection of school buildings, Halwin, for the Wendron School Board :—

Arthur Carkeet	£1,822 0 0	W. H. Jenkin	£1,469 0 0
J. White & W.		J. Berryman	1,467 10 0
Thomas	1,562 13 0	J. M. Richards	1,437 16 6
Hoskin & Oliver	1,539 19 8	Wm. Roberts, Hel-	
John Odgers	1,487 0 0	stone (accepted)	1,345 0 0

KIRKBYTHORE.—For the Kirkbythore, Templesowerby, and Newbiggin water supply, for the East Westmorland Rural District Council. Mr. George Watson & Son, engineers, Penrith :—

	Pipes.	Valves and Hydrants.	Exeavating, Carting, Laying Mains, Reservoir, &c.	For the Whole Works.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
E. & W. H. Haley	1312 0 0	—	—	—
Cochrane & Co.	1246 8 3	—	—	—
Stanton Iron Co.	1241 7 9	—	—	—
Exors. late D. Clark	1221 16 1	132 2 5	—	—
L. Ferguson	1195 10 0	—	—	—
J. Hudson, jun.	1194 0 0	207 0 0	1450 0 0	2796 0 0
Clay Cross Co.	1182 5 11	—	—	—
R. Laidlaw & Son	1149 4 2	185 4 0	—	—
J. McEwan & Co.	1138 2 8	—	—	—
J. McKnight & Sons	1131 11 4	131 2 1	1206 12 3	—
T. Allan & Son	1114 6 4	—	—	—
J. Shaw & Co.	1111 3 2	—	—	—
Joseph Jackson	1079 1 6	127 3 3	979 8 10	2185 13 7
Dodds, Bros., & Co.	1066 18 2	129 4 4	—	—
J. Ritchie	1053 6 6	—	—	—
Watson, Gow, & Co.	1038 17 9	—	—	—
Monier, Williams & Co.	1030 1 0	—	—	—
Dirkin Bros.	1009 1 3	225 0 0	1254 19 3	—
Guest & Chrimes	—	164 19 1	—	—
Clay & Henriques	—	157 2 8	—	—
Glenfield Co.	—	146 8 5	—	—
J. Stone & Co.	—	132 5 0	—	—
J. Blackboro' & Sons	—	124 15 8	—	—
Hamilton Woods & Co.	—	120 12 0	—	—
N. Hall	—	—	1259 10 0	—
J. Hunter	—	—	1175 5 9	—
J. Fisher & Co.	—	—	974 10 0	—
J. Dixon, Penrith*	—	—	813 4 6	1990 0 0

* Accepted.

HIGHWORTH (Wilts.).—For the erection of school buildings, for the School Board. Messrs. Bishop & Pritchett, architects, Regent-circus, Swindon. Quantities by the architects :—

W. A. Wheeler	£4,760 0	C. Williams	£4,469 17
J. Webb	4,520 0	J. Williams	4,396 0
G. Wiltshire	4,496 0	J. Thomas, Highworth*	4,232 0
T. Barrett	4,493 0	* Accepted.	

HITCHIN.—For building a house in Highbury-gardens, Hitchin, for Mr. Walter Whiting. Mr. Ellis Raves, architect, Welwyn, Herts. :—

M. Foster	£845	J. Willmott (accepted)	£745

HULL.—Accepted for the erection of five houses and dairy farms, Sutton. Messrs. Freeman, Son, & Gaskell, architects, Albert Chambers, 11, Carr-lane, Hull :—
Edward Good, Hull.....£2,680

HULL.—Accepted for the erection of residence, on the Spring Bank. Messrs. Freeman, Son, & Gaskell, architects, 11, Carr-lane, Hull :—
D. R. Robinson, Hull.....£568 19

KINTORE (Aberdeenshire).—For additions to school buildings. Messrs. Ellis & Wilson, architects, 181A, Union-street, Aberdeen :—

Building.—John Smith, Kintore	£515 14
Carpentry.—A. M. Craig, Kintore	
Slating.—Geo. Mitchell, Inverurie	
Plastering.—Robert Moir, Inverurie	
Painting.—G. Grant & Son	
Plumbing.—Jas. Laing & Son	

LLANDILO (Wales).—For the erection of a school-house, Gwaun-cae-Gurwen, for the Building Committee. Mr. J. W. Jones, architect, Gwily House, Llandilo :—

Thomas & Steaphans	£374 13	Jno. Williams, Gwmgors,	
David Thomas	370 0	Gwaun-cae-Gurwen*	£286 16
Walters Bros.	310 18	* Accepted.	

LONDON.—For the erection of shops and granary, at Dulwich for Mr. Thos. King. Messrs. W. Bradbear & Co., architects, Canonbury Station, N. :—

Courtney & Fairbairn	£3,307	Barker	£2,320
Welsh & Son	2,961	Simpson & Cove	1,988
Thomerson & Son	2,692	Hood	1,785
Steel	2,612		

LONDON.—For new drainage works and repairs at Weymouth-terrace, Hackney-road, for Messrs. Masters Bros. Messrs. W. Bradbear & Co., architects, Canonbury Station, N. :—

Thomerson & Son	£168 10	W. Poole	£110 13
W. Steel	117 9		

LONDON.—For new drainage works and repairs at Grosvenor House, Canonbury. Messrs. Bradbear & Co., architects, Canonbury Station, N. :—

G. Barker	£195	T. P. Smith	£185
W. Steel	193		

LONDON.—For alterations and additions at 8, England's-lane, N.W., for Messrs. French & Co. Mr. John Moir Kennard, architect, 13, Railway Approach, London Bridge :—

S. & R. Lamble	£1,117	Lascelles	£975
Pritchard & Kennick	1,073	Sumner & Co., Limited	898
Gould	999		

LONDON.—For alterations and additions to the "Lord Raglan" tavern, Wandsworth-road, for Mr. H. T. Fowler. Mr. Thomas Milbourn, architect, 12, Beaulieu Villas, Finsbury Park :—

Lovejoy	£2,500	Turtle & Appleton	£1,990
Lathey Bros.	2,370	Anley	1,976
Spencer & Co.	2,150	Walker	1,850
Beer & Gash	2,097		

LONDON.—For providing additional urinal accommodation for the Finance Department in the rear of the head office of the School Board for London, and for other work. Mr. T. J. Bailey, Architect :—

Davis Bros.	£1,130	Marchant & Hirst	£520
W. Hornett	947	B. E. Nightingale, Albert	
W. Downs	637	Embankment*	493
Lilly & Lilly, Ltd.	529		

* Recommended for acceptance by the Works Committee.

LONDON.—For taking down five partitions and providing and fixing eight new partitions in the boys' and girls' departments of the Tennyson-street School, Battersea, and for other works, for the School Board for London. Mr. T. J. Bailey, Architect :—

J. Marsland	£800	W. V. Goad	£642
W. Hammond	705	W. Downs	610
Holloway Bros.	703	Peacock Bros.	582
Lathey Bros.	699	F. & H. F. Higgs, Lough-	
Garrett & Son	664	borough Junction*	560

* Recommended for acceptance by the Works Committee.

LONDON.—For providing and fixing a complete system of low pressure hot-water apparatus for warming the whole of the Amberley-road School, Harrow-road, for the School Board for London :—

J. Gray	£457	J. & F. May	£412
J. Fraser & Son	442	Vaughan & Brown, Ltd.	388
J. F. Clarke & Sons	428	T. Potter & Sons, Ltd.,	
Purcell & Nobbs	423	Oxford-street*	369
W. G. Cannon & Sons	423		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing and fixing hot-water coils and a boiler at the Eglinton-road School, Plumstead, for the School Board for London. Mr. T. J. Bailey, Architect :—

Russell & Co.	£398 0	W. G. Cannon & Sons	£342 10
Maguire & Son	384 7	Comyn Ching & Co.	337 0
Vaughan & Brown, Ltd.	350 0	J. F. Clarke & Sons,	
J. Fraser & Son	347 0	Moorgate-street*	312 0

* Recommended for acceptance by the Works Committee.

LONDON.—For alterations, repairs, and fittings at the "Warburton Arms" public-house, Mare-street, Hackney, N.E., for Messrs. Holt & Co. Mr. Fred A. Ashton, architect, 3, Crooked-lane, E.C. :—

	Alterations, &c.	Fittings.	Total.
W. J. Maddison	£1,470	£485	£1,955
W. Shurmur	1,377	495	1,872
W. Watson	1,185	577	1,762
J. & H. Cocks	1,167	565	1,732
Hearle & Farrow	1,149	548	1,697

LONDON.—For the erection of an orphanage (St. Pancras Female Orphanage), for the Governors. Mr. H. H. Bridgman, architect, 42, Poultry, E.C. Quantities by Mr. S. G. Goss, 16, John-street, Bedford-row :—

Higgs & Hill	£6,234	Howell J. Williams	£5,687
Patman & Fotheringham	6,026	Gregar	5,487
B. E. Nightingale	5,993	Toms	5,449
Perry & Co.	5,899	Wall	5,391
E. Lawrence & Sons	5,850	Scrivener	5,338
T. Boyce	5,800	Richardson	5,315
Vernall, Danes, & Co.	5,797	Lamble	5,249
Simpson & Son	5,704		

LONDON.—For the erection of additional class-room to the infants' department of the West Ham Parish Schools, for the Rev. R. Arnold Pelly, M.A., and managers. Messrs. Newman & Jacques, architects, 2, Fen-court, E.C. :—

Cheffins	£315	Scott	£273
Reed & Son	309	Hosking	238
Bishop & Webb	275	North Bros.	227

LONDON.—The following tenders were accepted at the last meeting of the London County Council :—

L. Faulkner & Sons (repairs to and painting of the Myatt's Fields boundary-wall)	£111 2 10
McVey (for the supply of fencing for Hilly Fields)	927 19 9
S. Kavanagh (for rebuilding Lea Bridge)	8,399 17 9

LONDON.—For converting the building in Thames-street, Lime-house, at present used by the boys (which provides accommodation for 480 children), and for erecting a new department for boys, to accommodate 384 children, and for other work, for the School Board for London. Mr. T. J. Bailey, Architect :—

W. Gregar & Son	£17,980 0	E. Lawrance & Sons	£15,465 0
A. Reed & Son	16,581 0	Treasure & Son	15,2-5 10
J. Longley & Co.	16,412 0	J. & M. Patrick	15,151 0
J. Shillitoe & Son	16,250 0	L. H. & R. Roberts	15,1-5 0
W. M. Dabbs	16,073 0	C. Cox, Hackney*	14,994 0
W. Shurmur	15,620 0		

* Recommended for acceptance by the Works Committee.

LONDON.—For the erection of a school on the site in Faraday-street, Portland-street, Walworth, to provide accommodation for 824 children, for the School Board for London. Mr. T. J. Bailey, Architect :—

J. & M. Patrick	£15,925 0 0	J. Smith & Sons	£15,260 0 0
C. Miskin	15,900 0 0	G. E. Wallis & Sons	15,133 0 0
J. Marsland	15,455 0 0	D. Charteris, Page-	
W. Downs	15,350 0 0	st., Westminster*	14,978 5 1

* Recommended for acceptance by the Works Committee.

LONDON.—For forming a boiler-room in connexion with the new system of heating apparatus about to be provided at the Great College-street School, Camden Town, and for other works, for the School Board for London. Mr. T. J. Bailey, Architect :—

Vernall, Danes, & Co.	£395 0	A. M. Sparks	£394 0
R. A. Yerbury & Sons	358 0	Marchant & Hirst	315 0
Cowley & Drake	355 0	Kirby & Chase, Hornsey-	
W. T. Ballard	344 5	road,*	27 0

* Recommended for acceptance by the Works Committee.

LONDON.—For taking down two partitions on the first and second floors of the Holden-street School, Battersea, and for providing four new partitions in lieu thereof, for the School Board for London. Mr. T. J. Bailey, Architect :—

W. Hammond	£414	W. Downs	£315
Holloway Bros.	397	J. Garrett & Son, Old Town,	
Lathey Bros.	375	Clapham*	235
K. E. Williams & Sons	320		

* Recommended for acceptance by the Works Committee.

LONDON.—For the enlargement of the Marsh-lane School, East Greenwich, by 384 places, for the School Board for London. Mr. T. J. Bailey, Architect :—

W. Holt & Sons	£3,774	Kirk & Randall	£3,198
A. Reed & Son	3,040	Mid-Kent Building and	
F. & H. F. Higgs	3,558	Contracting Works, Ltd.	3,160
B. E. Nightingale	3,386	J. Shillitoe & Son	2,950
J. Smith & Sons	3,275	E. Proctor, Woolwich*	2,750

* Recommended for acceptance by the Works Committee.

LONDON.—For erecting offices for all departments of the Latimer-road School, Notting Hill, and also for providing a new system of drainage for the whole school, with the exception of the cookery centre, for the School Board for London. Mr. T. J. Bailey, Architect :—

R. A. Yerbury & Sons	£1,525 0	G. Lyford	£1,364 0
G. Parker	1,499 0	S. Polden	1,360 13
McCormick & Sons	1,478 0	Cowley & Drake	1,295 0
E. Triggs	1,410 0	Vernall, Danes, & Co.,	
B. E. Nightingale	1,376 0	12, Albany-street*	1,253 0

* Recommended for acceptance by the Works Committee.

LONDON.—For the enlargement of the Lombard-wall School, Charlton, by 336 places, for the School Board for London. Mr. T. J. Bailey, Architect :—

B. E. Nightingale	£11,733	J. & M. Patrick	£10,884
J. Smith & Sons	11,579	J. Shillitoe & Son	10,835
C. Cox	11,534	Kirk & Randall	10,815
A. Reed & Son	11,513	Treasure & Son, Harrin-	
W. Downs	11,460	gay*	10,053
J. Longley & Co.	11,402		

* Recommended for acceptance by the Works Committee.

LONDON.—For overhauling the heating, cooking, and laundry apparatus at the Highbury-grove Truant School, for the School Board for London :—

J. Fraser & Son	£296 0	J. F. Clarke & Sons	£159 0
T. Potter & Sons, Ltd.	255 0	Benham & Sons, Ltd.,	
J. & F. May	185 0	Wigmore-street, W.*	156 10

* Recommended for acceptance by the Works Committee.

LONDON.—For taking down and rebuilding walls, gateways, &c., at the Waller-road School, Hatcham, for the School Board for London. Mr. T. J. Bailey, Architect :—

Mid-Kent Building and Con-		J. & C. Bowyer	£254
tracting Works, Ltd.	£368	J. Frampton	249
J. & A. Oldman	305	B. E. Nightingale	225
W. Akers & Co.	292	H. Leney, Penge*	209

* Recommended for acceptance by the Works Committee.

LONDON.—For providing and fixing glazed sliding partitions in the girls' and infants departments of the Laxon-street School, Bermondsey, for the School Board for London :—

Johnson & Co.	£230	J. Marsland	£145
Leeks & Hooker	210	W. Downs, Walworth-road*	139

* Recommended for acceptance by the Works Committee.

LONDON.—For dividing two large class-rooms in the boys' and girls' departments of the "Victoria" School, Starch Green, into four rooms, for the School Board for London :—

H. C. Clifton	£160 0	G. Lyford	£127 0
F. T. Chinchen	157 0	G. Neal, Chilworth-street,	
S. Polden	140 0	W.*	105 0
Cowley & Drake	137 10		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing new lavatories in the infants' department of the Boundary-lane School, Camberwell, for the School Board for London :—

Davis Bros.	£194 10	W. V. Goad	£149 0
G. Parker	185 0	R. A. Marshall	147 0
Mitchell & Co.	150 0	J. Marsland, Walworth*	140 0

* Recommended for acceptance by the Works Committee.

LONDON.—For dividing two rooms in the mixed department of the Amberley-road School, Harrow-road, accommodating sixty each, into three rooms for forty each, for the School Board for London :—

G. H. Sealy	£277 0	Stevens Bros.	£138 0
F. T. Chinchen	220 0	G. Neal	129 0
H. C. Clifton	213 0	J. Christie, Shepherd's	
Cowley & Drake	175 10	Bush*	118 0
R. A. Yerbury & Sons	150 0		

* Recommended for acceptance by the Works Committee.

LONDON.—For interior and exterior painting at the Richard-street Schools, Liverpool-road, for the School Board for London :—

Dearing & Sons	£542 0	J. Riley, 40, North-street,	
Vernall, Danes, & Co.	517 0	N. (accepted)	386 2
McCormick & Sons	445 0	Morrison & Goodwin	270 10
		G. H. Rowe	263 0

LONDON.—For alterations to the "Harry" Tavern, Bromley, E. Messrs. C. Foulsham & Herbert Riches, architects, 3, Crooked-lane, E.C., and Bromley-by-Bow, E. :—

Oldrey & Sons	£1,315	T. Osborn & Sons	£990
J. T. Robey	1,208	S. Salt	954
Brown & Kruze	1,152	Ellis & Son (accepted)	14

LONDON.—For carrying out repairs to the head offices of the London School Board on the Board's printed schedule of prices. The following is the percentage which the contractors require to be added to, or deducted from, the schedule :—

	Per cent.		Per cent.
W. Hornett	plus 37½	Harrison & Spooner	plus 22½
Davis Bros.	,, 35	G. Foxley	,, 17½
Lilly & Lilley, Ltd.	,, 25	B. E. Nightingale *	,, 17½
F. G. Minter	,, 25	Mitchell & Co.†	less 7½

* As the lowest tender is not complete, the Committee are of opinion that the tender of Mr. B. E. Nightingale, with an addition of 17½ per cent. to the printed schedule, should be accepted.
† Plumbing and sanitary work only.

LONDON.—For repairs to the "Duke of Edinburgh," Wanstead, N.E. Messrs. C. Foulsham & Herbert Riches, architects, 3, Crooked-lane, E.C., and Bromley-by-Bow, E. :—

W. Mundy	£140	J. T. Robey	£127
F. J. Evans	135	T. Osborn & Sons *	115

* Accepted.

LONDON.—For new staircase at 31, St. Paul's Churchyard, City. Mr. Herbert Riches, architect, 3, Crooked-lane, E.C. :—

J. Greenwood	£159	S. J. Scott (accepted)	£141

LONDON.—For providing and fixing additional radiators on the top floor of the Everington-street School, Hammersmith, with condense cylinder and small steam-pump in basement, for the School Board for London. Mr. T. J. Bailey, Architect :—

J. Wontner-Smith, Gray, & Co.	£253 0	W. G. Cannon & Sons	£159 0
J. Fraser & Son	173 10	J. & F. May, Whetstone Park, Lincoln's Inn-fields *	153 0
J. F. Clarke & Sons	167 0		

* Recommended for acceptance by the Works Committee.

LONDON.—For taking down and refixing a partition in the Bonner-street School, Bethnal Green, and for fixing a new partition, for the London School Board :—

T. H. Jackson	£295	Gibb & Co.	£212
W. Gregar & Son	218	J. F. Holliday	147
J. T. Robey	215	White & Son, Bow *	143

* Recommended for acceptance by the Works Committee.

MANSFIELD.—Accepted at a schedule of prices for alterations and additions to the "Plough Inn," Nottingham-road, Mansfield, for the Worksop and Retford Brewery, Co., Limited. Mr. R. Frank Vallance, architect, Mansfield :—
J. Greenwood, Mansfield.

MANSFIELD.—Accepted at a schedule of prices for additions to the Wesleyan Day Schools, Mansfield. Mr. R. Frank Vallance, architect, Mansfield :—
J. Greenwood, Mansfield.

MANSFIELD.—Accepted at a schedule of prices for alterations to business premises, West Gate, Mansfield, for Mr. John Witham. Mr. R. Frank Vallance, architect, Mansfield :—
W. S. Cuddy, Mansfield.

MARGATE.—For the erection of school buildings and caretaker's cottage, together with boundary walls and fences, levelling and forming playgrounds, &c., at Salmstone, for the Margate (United District) School Board. Mr. R. Dalby Reeve, architect to the Board, 28, Cecil-square, Margate. Quantities by Mr. John S. Quilter, 1, Adam-street, Adelphi, W.C. :—

	For the School Buildings.	For Caretaker's Cottage.	For Boundary Walls and Laying out Playground.	Total.
E. Padget	£5,584 10	£482 0	£1,299 0	£7,361 10
Paramor & Sons	5 400 0	490 0	1.440 0	7 330 0
A. Wing	5 296 10	456 0	1,477 12	7.230 0
J. Brown & Son	5,353 12	457 7	1,269 0	7,079 19
A. S. Ingleton	4,848 0	409 0	1,213 0	6,470 0
Hayward & Paramor	5,015 0	449 0	899 0	6,363 0
W. & T. Denne, Walmer *	4.498 0	412 0	974 0	5,884 0

* Accepted.

RUSHDEN (Northants).—For works of sewerage and sewage disposal, for the Rushden District Council. Messrs. Sharman & Archer, Engineers, Market-square, Wellingborough :—

	Outfall Works.†	Sewers.	Total.	For ordinary Stanford Jointed Pipes in place of Parker & Hassell's Single-lined Joint.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
F. Patterson & Co.	2,159 18 8	10,768 6 7	12,919 5 3	12,619 5 3
W. Braithwaite	1,954 10 0	10,562 10 0	12,517 0 0	12,402 0 0
B. & G. Bently	1,666 2 4	10,208 0 6	11,868 2 10	11,348 2 10
Solden Hipwell	1,340 0 0	10,014 0 0	11,354 0 0	11,279 0 0
J. & T. Binns	1,351 2 4	9,508 10 2	10,859 12 6	10,589 12 6
William Cumlife	1,370 0 0	9,156 0 0	10,526 0 0	10,526 0 0
George Bell	1,299 0 0	9,650 0 0	10,949 0 0	10,411 0 0
W. G. Wilmott	1,179 0 0	9,570 0 0	10,740 0 0	10,360 0 0
F. Barlow	1,323 0 0	9,127 0 0	10,450 0 0	10,050 0 0
Jesse Young	1,420 0 0	9,000 0 0	10,420 0 0	10,650 0 0
Brown & Sons	1,265 0 6	9,151 0 0	10,416 0 6	9,449 7 2
Bierrey & Seldon	1,178 18 6	8,424 2 10	9,602 1 4	9,255 10 0
W. T. Hall	1,276 18 0	8,169 2 0	9,445 0 0	9,190 0 0
George Henson, Wellingborough *	1,147 0 0	8,440 0 0	9,587 0 0	

* Accepted. † Including the construction of an Ive's tank on the "Universal" sewage disposal system.

MORECAMBE.—Accepted for additions to school buildings, Anderton-street, for the Poulton School Board. Mr. James Marshall, architect, Durban Lea, Morecambe. Quantities by architect :—

Plumbing and Ventilating.—Jas. McNair, Morecambe	£121	15	9
Masonry and Bricklaying.—H. Miller, Morecambe	94	0	0
Joinery and Carpentry.—Jas. Moore, Morecambe	73	0	0
Slating and Plastering.—W. J. Cross, Morecambe	23	8	0
Painting.—Morrell & Son, Morecambe	3	4	7
Total	£315	8	4

MANSFIELD (Notts.)—For making up High-street, for the Corporation. Mr. R. Frank Vallance, Borough Surveyor, White Hart Chambers, Mansfield :—

Joseph Tomlinson	£480 14 5	J. W. Fisher, Mansfield (accepted)	£333 0 0
John Greenwood	388 0 0		
James Bradley	380 8 9		

NOTTINGHAM.—Accepted for the erection of a house, Somercotes, for Mr. Merriman. Mr. Hy. Harper, architect, Market place, Nottingham. Quantities by the architect :—
Roe & Son, Alfreton £700

NOTTINGHAM.—Accepted for the erection of mission hall in Selhurst-street, for the Primitive Methodists. Mr. Hy. Harper, architect, Market-place, Nottingham :—
W. Savage £463 10

SOUTHALL.—For erecting new girls' school, with seating accommodation for 400 children, for the Southall-Norwood School Board. Mr. Thos. Newell, architect. Quantities by Messrs. Young & Brown :—

Dorey & Co.	£6,196	Foord & Son	£6,084
Thos. Hiscock	6,151	Wm. Brown	6,068
Nye (Executors of)	6,133	A. & B. Hanson	5,997
Adamson & Son	6,129		

SOUTHAMPTON. — For additions to school buildings (St. Mark's), Woolston, for the St. Mary Extra School Board. Messrs. Mitchell, Son, & Gutteridge, architects, 9, Portland-street, Southampton :—

W. Franklin	£994 0	H. Stevens & Co.	£874 0
A. Wheeler	919 19	C. & A. Witt	850 0
Playfair & Toole	908 0	A. Warden, Southampton *	810 6

* Accepted subject to approval of Education Department.

STOKE-UPON-TRENT.—For erection of deaf, dumb, and blind schools, Stoke-on-Trent, for the united Boards of the district. Messrs. R. Scrivener & Sons, architects, Hanley :—

Whitfield	£12,463 0	Bennett	£10,750 0
Cooke	11,230 0	Bagnall	10,596 0
Embrey	11,200 0	Godwin	10,200 0
Cornes	10,999 18	Yoxall, Stoke *	10,130 0
Ellis	10,989 0		

* Accepted.

STOKE-UPON-TRENT.—For additions to the Mount Pleasant Schools, for the Stoke-on-Trent Church of England School Board. Messsrs. R. Scrivener & Sons, architects, Hanley :—

L. Price	£900	Ball & Robinson	£845
J. Breeze	860	T. R. Yoxall, Stoke *	830

* Accepted.

SWANAGE.—For the erection of stables and coach-houses at the "Red Lion" Hotel, Swanage, for Mr. S. W. Bennett. Mr. W. Watts Fookes, architect and surveyor, Wareham :—

Geo. Runyard	£311	H. W. White *	£276
F. Welstead	280		

* Accepted.
[All of Swanage.]

SWANAGE (Dorset).—For the erection of school buildings, Townsend-lane, for the School Board. Messrs. Houston & Houston, 13, Furnival's-inn, London :—

F. Wellstead	£4,995 0	Geo. Pond & Chas. Holt	£3,957 0
W. E. Jones & Son	4,878 0	Daniel Hitchings	3,547 10
Geo. Fenington & H. W. White	4,330 0	H. & J. Hardy, Swanage *	3,200 0

* Accepted.

TIBSHELF.—For the Tibshelf Waterworks Contract No. 2 (covered service-reservoir, cast-iron mains, valves, apparatus, &c.), for the Blackwell Rural District Council. Messrs. George and F. W. Hodson, engineers :—

J. F. Price	£6,365 9 0	James Holmes	£5,000 0 0
H. Weldon	5,372 3 10	John Lane	4,964 0 0
The Clay Cross Co.	5,175 0 0	J. Tomlinson	4,900 0 0
F. Eyre	5,134 18 2	J. H. Vickers	4,842 0 0
H. Roberts	5,000 0 0	Amos Jenkins	4,710 0 0

WAREHAM.—For the erection of new posting stables at the "Red Lion" Hotel, Wareham, for Mr. W. M. Calcraft. Mr. W. Watts Fookes, architect and surveyor, Wareham :—

John Laws	£293	George Hobbs (accepted)	£280
William Laws	280		

[All of Wareham.]

WAREHAM.—For alterations, repairs to drains, and painting at the workhouse. Mr. W. Watts Fookes, architect and surveyor, Wareham :—
George Hobbs (accepted) £102 2 6
External Painting.
John Laws (accepted) £83 10

WAREHAM (Dorset).—For proposed new class-rooms, porches, &c., at the Congregational Church. Messrs. Lawson & Donkin, architects and surveyors, Yelverton Chambers, Bournemouth. Quantities supplied :—

Gray	£515 16 3	Hobbs	485 0 0
Eaton	495 0 0	W. Laws (informal)	£441 0 0
Hardy	493 15 0	Pearcy	433 15 0
Baker	485 19 6	Burt & Vick, Poole *	430 0 0

* Accepted.

WELLINGBOROUGH.—For the erection of two cottages, Grange Farm, Irthlingborough, for the Urban District Council. Mr. Edward Sharman, Surveyor, Council Offices, Wellingborough :—

G. A. Smith	£256 0	G. Chapman	£200 12
T. Mabbutt	215 0	Tebbutt & Pratt *	185 0

[All of Wellingborough.]
* Accepted.

WEST HAM.—For the erection of school buildings (Frederick's-road School), Victoria Docks, for the School Board. Messrs. Newman & Jacques, architects, 2, Fen-court, E.C. Quantities by Messrs. R. L. Curtis & Sons :—

Geo. Sharpe	£23,988	Reed & Son	£22,458
Stimpson & Co.	23 976	Kirkknight & Co.	21,950
Gregar & Son	23,440	W. J. Maddison	21,750
Chessum & Son	23,369		

WOKING.—For additions to school buildings, Maybury, for the School Board. Messrs. Welman & Street, architects, Church-street, Godalming. Quantities by architects :—

Higglett & Hammond	£1 270 0	A. A. Gale	£1,145 10
Michael Brown	1,200 0	Ingram & Son	1,127 0
Jas. Whetburn	1,176 0	Winslade Bros. *	744 0
Harris & Son	1,150 0		

* Informal.

TO CORRESPONDENTS.

J. A. S.—H. C.—S. & G. —(amount should have been stated).—W. J. E. (too late; next week).—A. B.

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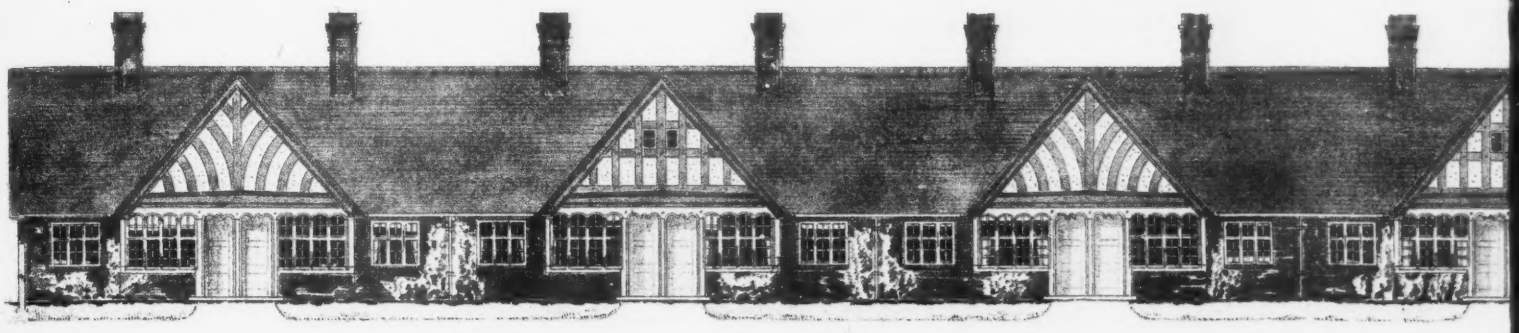
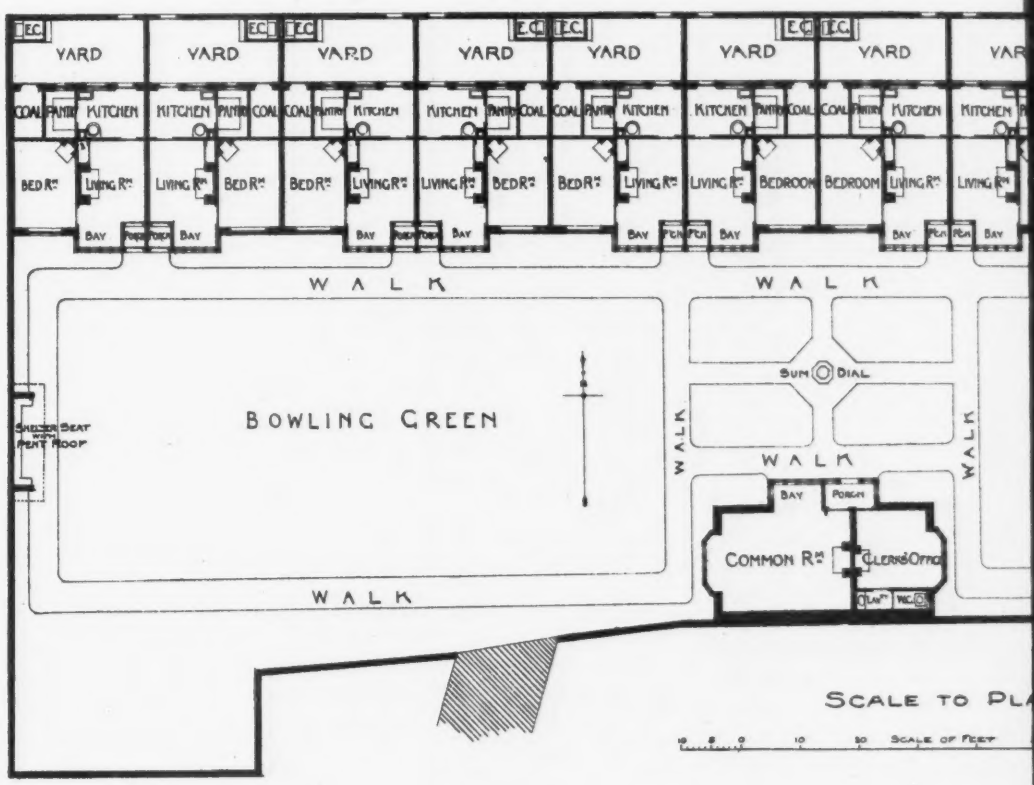
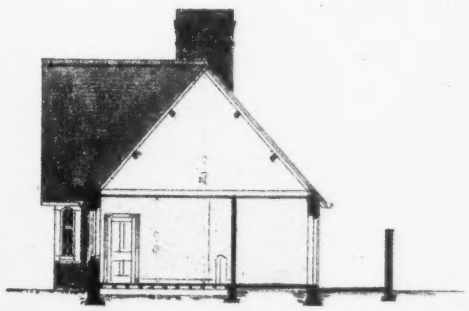


South Elevation of Alms

East Elevation
or
Porter's Lodge



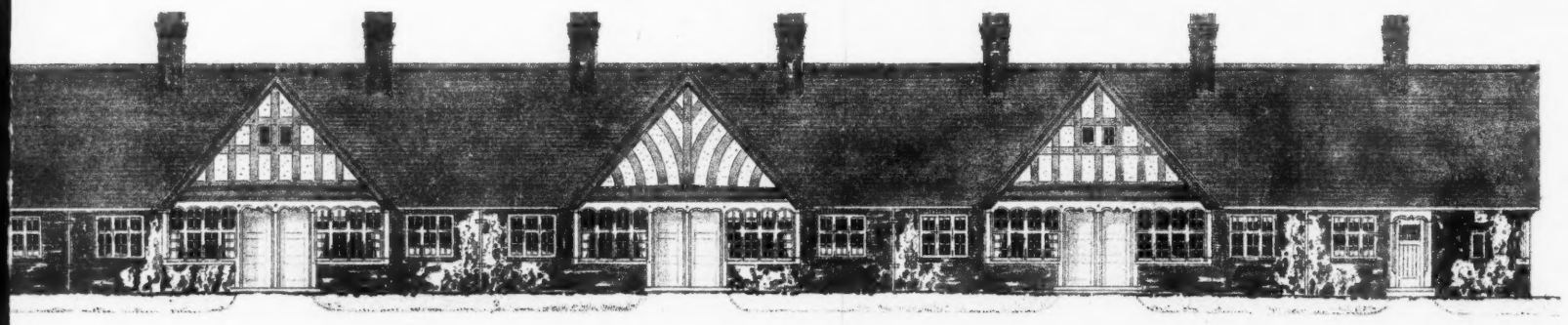


Section

View from High Str

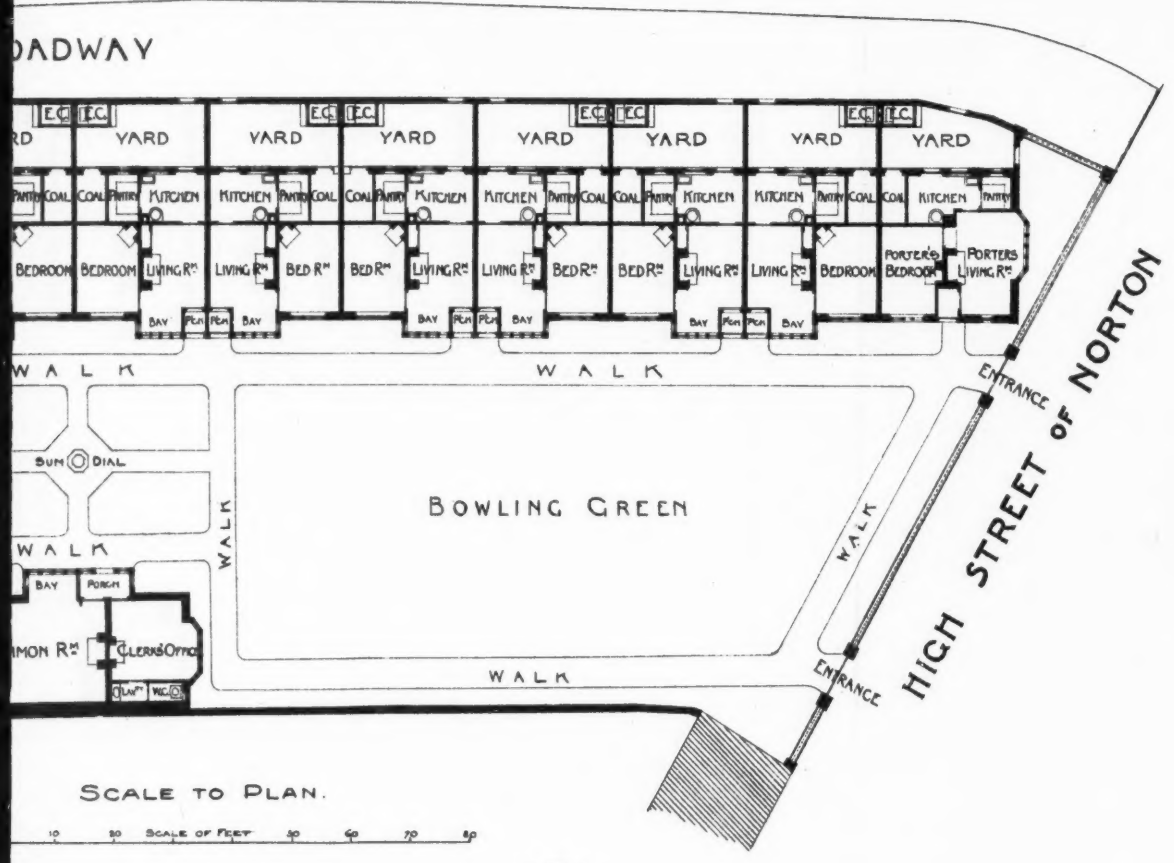
SCALE TO ELEVATIO

SELECTED DESIGN FOR THE FOX ALMSHOUSES, NORTON, DU



) Elevation of Alms Houses

Porter's Lodge.

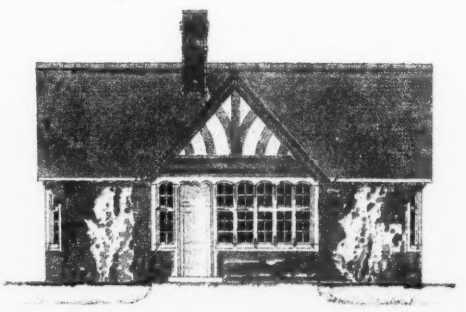


SCALE TO PLAN.

10 20 SCALE OF FEET 50 60 70 80

West Elevation of Common Room

View from High Street



North Elevation of Office and Common Room

SCALE TO ELEVATIONS &c.

30 40 50 60 70 80 90 Feet

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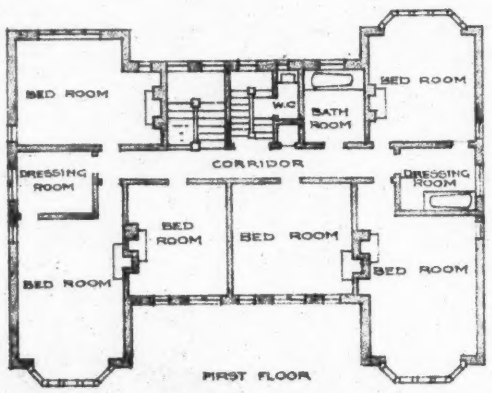
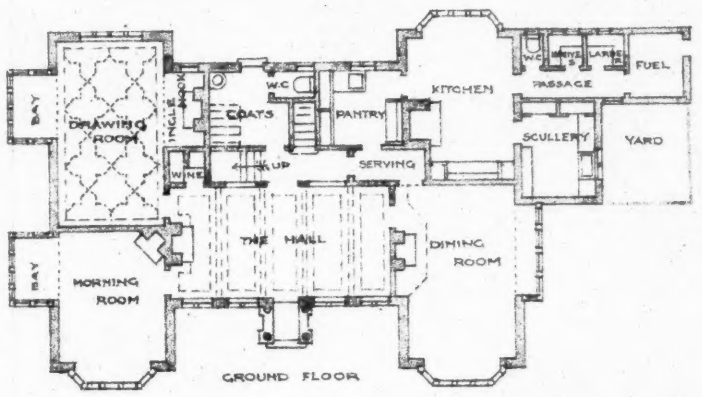
SHOUSES, NORTON, DURHAM.—Messrs. Clark & Moscrop, Architects.

St Margaret's : Mount Park :
HARROW :
for Andrew Devitt Esq.re





Arnold Mitchell
Architect
16 Finsbury Circus, E.C.

Norman's Wood in the county of Surrey.

for George·P·Field·Esq:

Kitchen Garden — The Stables and Coach houses — Servants Ent — Luggage ent

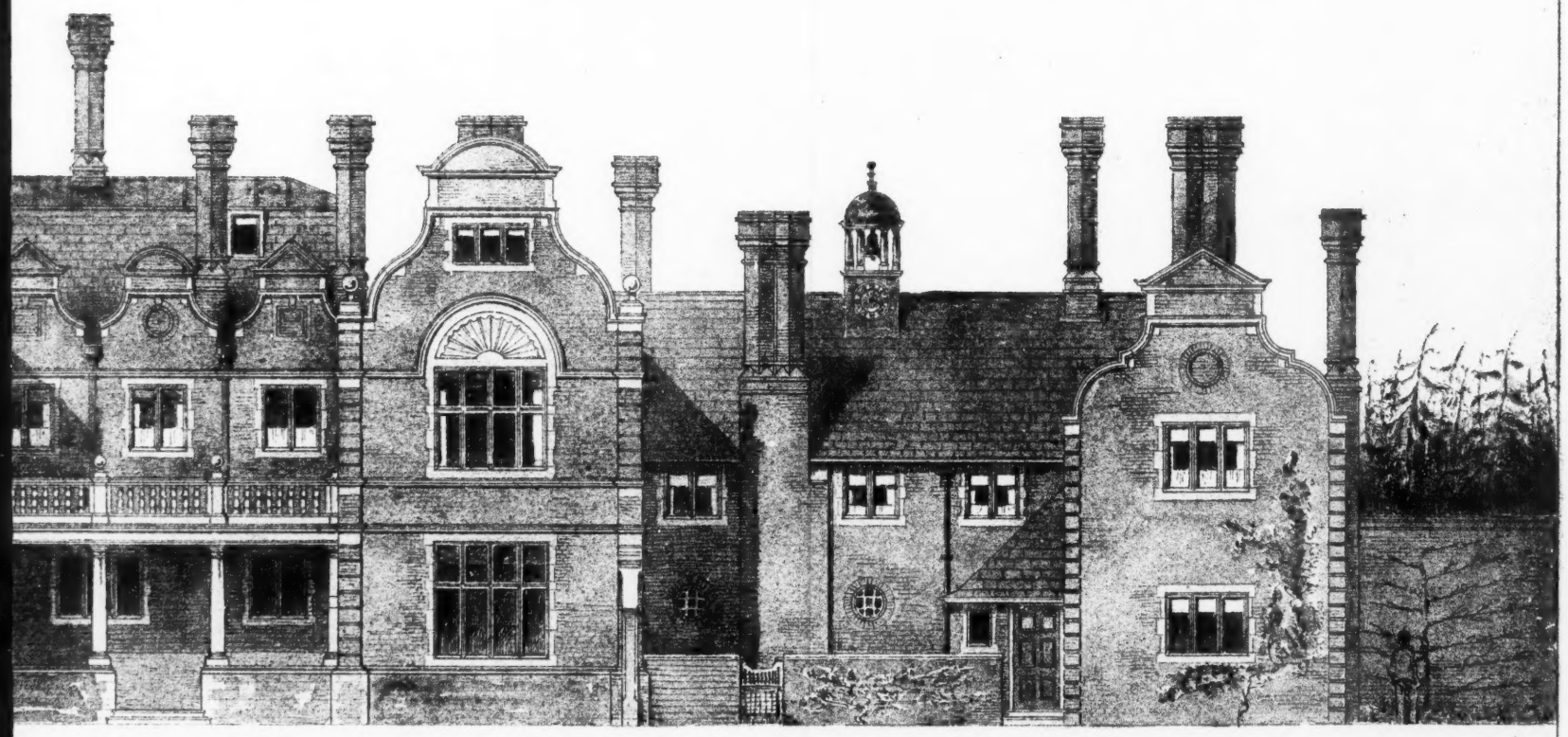
The·North·West·Prosp

Billiard room — Drawing room — Dining room

The·South·East·Prosp

Luggage ent the Principal Entrance the Hall the Library.

ort 6. West. Prospect



Kitchen Harness room

outh. East. Prospect.

Percy G. Stone
inv. et delt Mar: 1895

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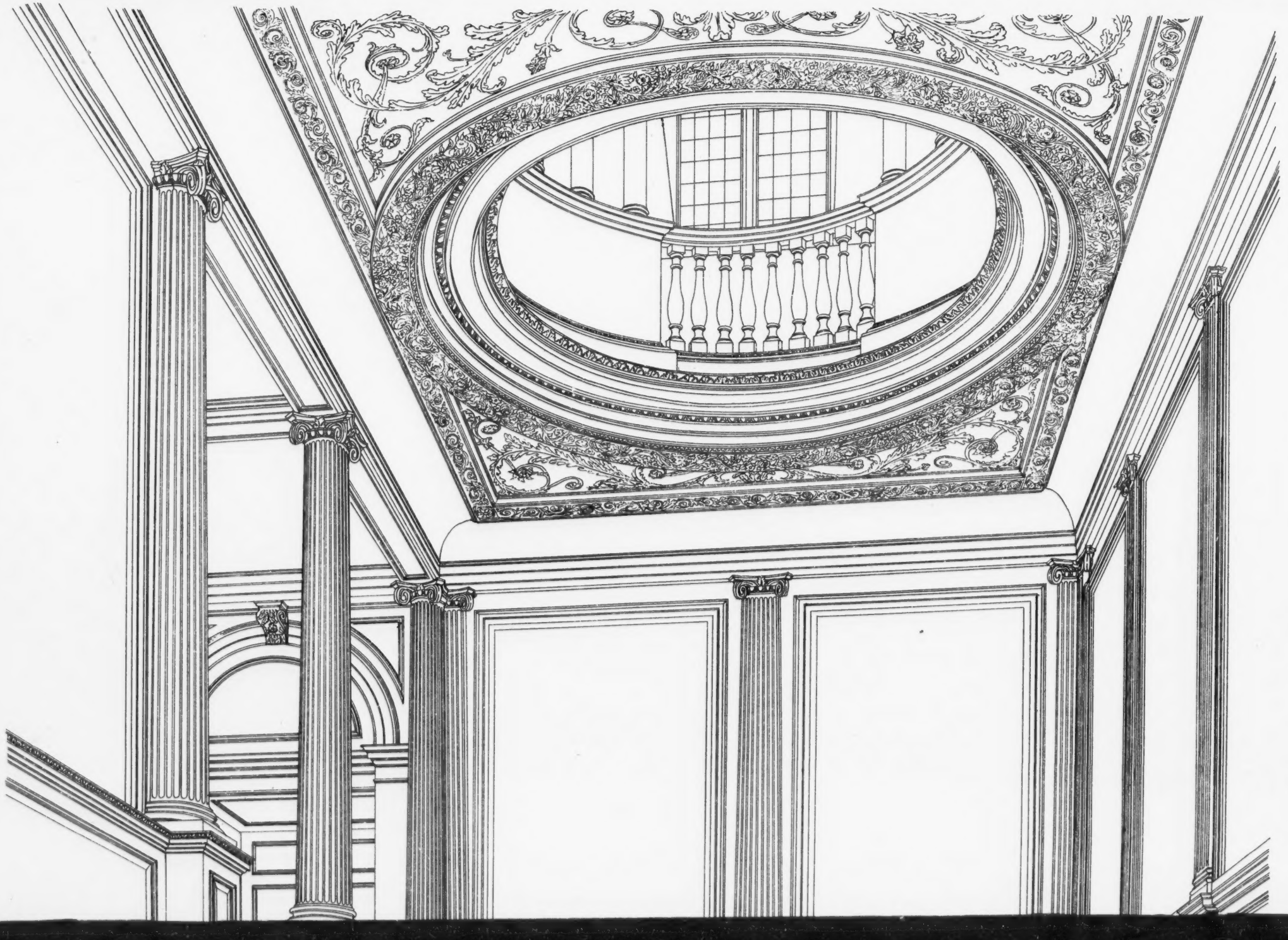

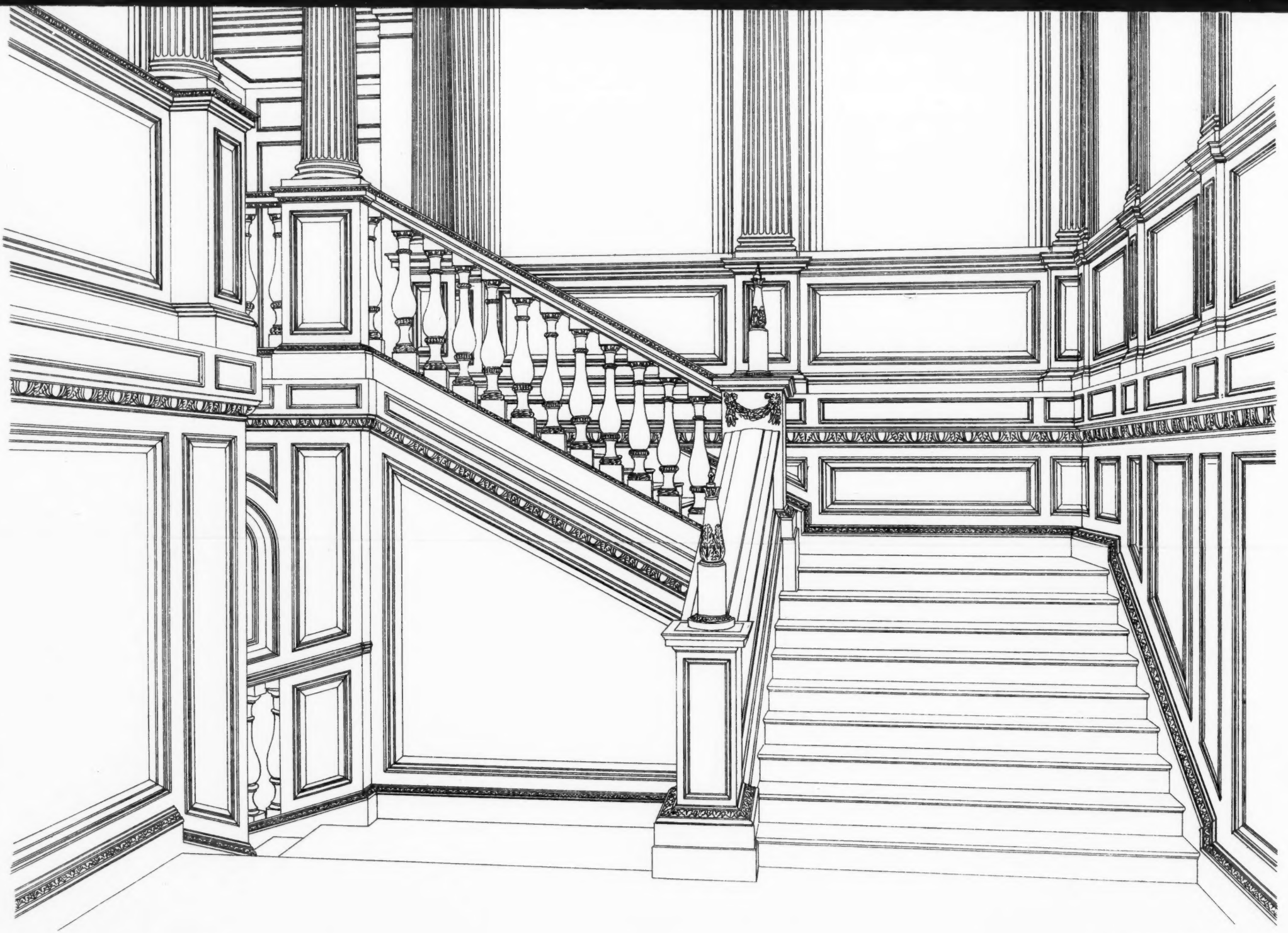

W. WONNACOTT. 1895.

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